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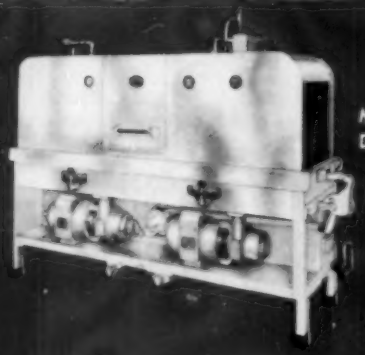

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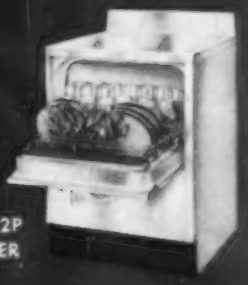

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Construction outlays in January and February fulfilled predictions made for 1955. Reports from U. S. Dep'ts. of Commerce and Labor estimate cost of new construction placed during first two months at $5423 millions, 13% above same period in '54. Spending of $2636 millions in February alone indicates an annual rate of $40.5 billions, as compared to $37.2 billions last year.

Private and public housing starts for first two months of 1955—178,000 units—topped last year's activity by 26%. . . . Housing Administrator Albert M. Cole predicts that high level of home building, 1.2 to 1.3 million units per year, might be sustained by demand for better living quarters for low-income groups and replacements on older homes, although current rate of new household formations is estimated at approximately 600,000 per year.

Within five years, 40% of country's housing market will be taken over by makers of prefab homes, prophesies Gen. John J. O'Brien, retiring president of Prefabricated Home Manufacturers' Institute. Activity in 1954 gained over previous year by 34% and this year an increase of 30% is expected.

In a decision of import to future city-planning and slum-clearance projects, the U. S. Supreme Court recently decided in the case of Berman v. Parker (75 "Supreme Court Reporter," p. 98) that all property within an area designated for redevelopment may be subject to condemnation, even though an individual building is, in itself, exempt from attack. Comments by Justice William O. Douglas indicate that while esthetics alone may not be sufficient grounds for condemnation, the concept of public welfare does represent values which are "spiritual as well as physical," and "esthetic as well as monetary."

NAHB plans to start construction of $2-millions Research Village in Grand Rapids, Mich., early next year. Fifty homes, open for public inspection, will be completely equipped to serve as testing ground for latest architectural ideas, building techniques, and materials.

Beaux-Arts Institute of Design announces award of its $5000 Lloyd Warren Scholarship for 18 months' study abroad to Norman L. Johnson, architectural student at University of Illinois. . . . 1955 Arnold W. Brunner Scholarship for $2400 was granted by New York Chapter AIA to Ralph E. Myers of Kansas City, Mo., for second consecutive year. Myers has been editing series of 30-minute lectures, in form of colored slides with tape-recorded commentary, entitled "ARCHITECTURE—U.S.A."

George Howe, 1887-1955

Distinguished Architect in practice 42 years, FAIA, former Supervising Architect of PBA, ex-Chairman of Yale Department of Architecture, ex-Resident Architect at American Academy in Rome, influential Chairman and Professional Advisor of national design competitions, died April 16 in Philadelphia on eve of departure for Ankara, Turkey, to help establish UNESCO School of Architecture. Architect, with William Lescaze, of Philadelphia Saving Fund Society skyscraper; partner of Robert Montgomery Brown since 1945; Chairman of Design Advisory Board for current Penn Center project.

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newsletter

Frederick Gutheim

Washington Perspective

The first three of a group of 29 lease-purchase projects for Federal buildings—in Green Bay, Wisconsin, Rock Island, Illinois, and Council Bluffs, Iowa—are scheduled to be assigned to Midwest architects early this month. But the jobs themselves, combinations of post offices and court houses or office buildings, will be scarcely distinguishable from any other sorts of Federal buildings save in the invisible aspects of financing. Architects will receive the same assignments, work with the same Public Buildings Service reviewing and supervisory officials, use the same design and engineering standards, get the same negotiated fees, as if the buildings they design were built by direct appropriation rather than with private funds for long-term lease to the government.

In selecting architects, PBS still holds that geographical location is the most important characteristic. Local boy makes good! If not, it's likely to be an architect from another nearby town of the same size—not a big-city slicker. In its first group of projects, PBS invited all architects in Green Bay and larger Wisconsin cities to indicate their interest in the job. Those interested were asked to complete new roster forms giving standard data on size of firm, experience, technical background. Selection was then made. The same procedure was followed in Iowa; but in Illinois, selection was limited to Rock Island, Peoria, Moline, and Rockford architects (eliminating Chicago). In all, 360 firms have been approached.

A fourth lease-purchase project, a court house and post office in Lake Charles, Louisiana, has been approved and a site is now being selected. Action to release another eight or ten projects, including some larger office buildings, is expected during April or May. A similar architectural selection procedure will then be initiated in each area.

The balance of the PBS project list, sent to Congress last August shortly after the program commenced, is still being held up by the Senate Public Works Committee, which must approve each building. Having already "saved" $1.3 million in the projects thus far approved, by demanding new field surveys (and having enormously increased the opportunities for political maneuver), fast action is hardly to be expected, even on projects that have been long in the course of preparation. The field surveys were made by PBS field personnel and Budget Bureau representatives (who had claimed the net-to-gross space ratios in PBS work were too high) and they covered everything: the need, site, land, values, community, and other factors, including the condition of existing buildings. Obviously little value is set on an urgent building need that awaits satisfying. Nor does it explain why the economy-minded, nonpolitical Government Services Administration which supervises PBS isn't capable of doing the job itself.

A new program like this demands closer examination, it is argued. Perhaps! The more probable reason is anxiety in Congress over a program which initiates, for the first time since 1940, public buildings activity in the executive branch of the government. These 29 building projects were sent to Congress nine months ago as a package and are subject to individual approval by committees that have jealously guarded their prerogatives in public building functions. They appear determined that the lease-purchase will not diminish legislative powers.

Whatever may turn out to be the merits of this new type of building, the architects have done well so far, in a job sense. They are directly engaged, not wrapped into the total building package as was at first proposed. Fees currently are being paid from unexpended balances of 1949 appropriations. (This is necessary because under lease-purchase procedures no money is available for building purposes until the investor has been selected by competitive bid.) But next year, architects' fees, as such, will have to be sought from Congress by PBS as a budgetary "line item," and architectural services will be more specifically discussed in appropriations committees.

PBS has a good architectural policy—in spite of the manifest waste in examining 360 architects for three jobs. It also has a very definite idea of what it wants: the architect who can do the best job for the money. This ought to go down with Congress, but the independent architect is going to be looked over more carefully than before, to see that he's a necessary part of this new kind of building.

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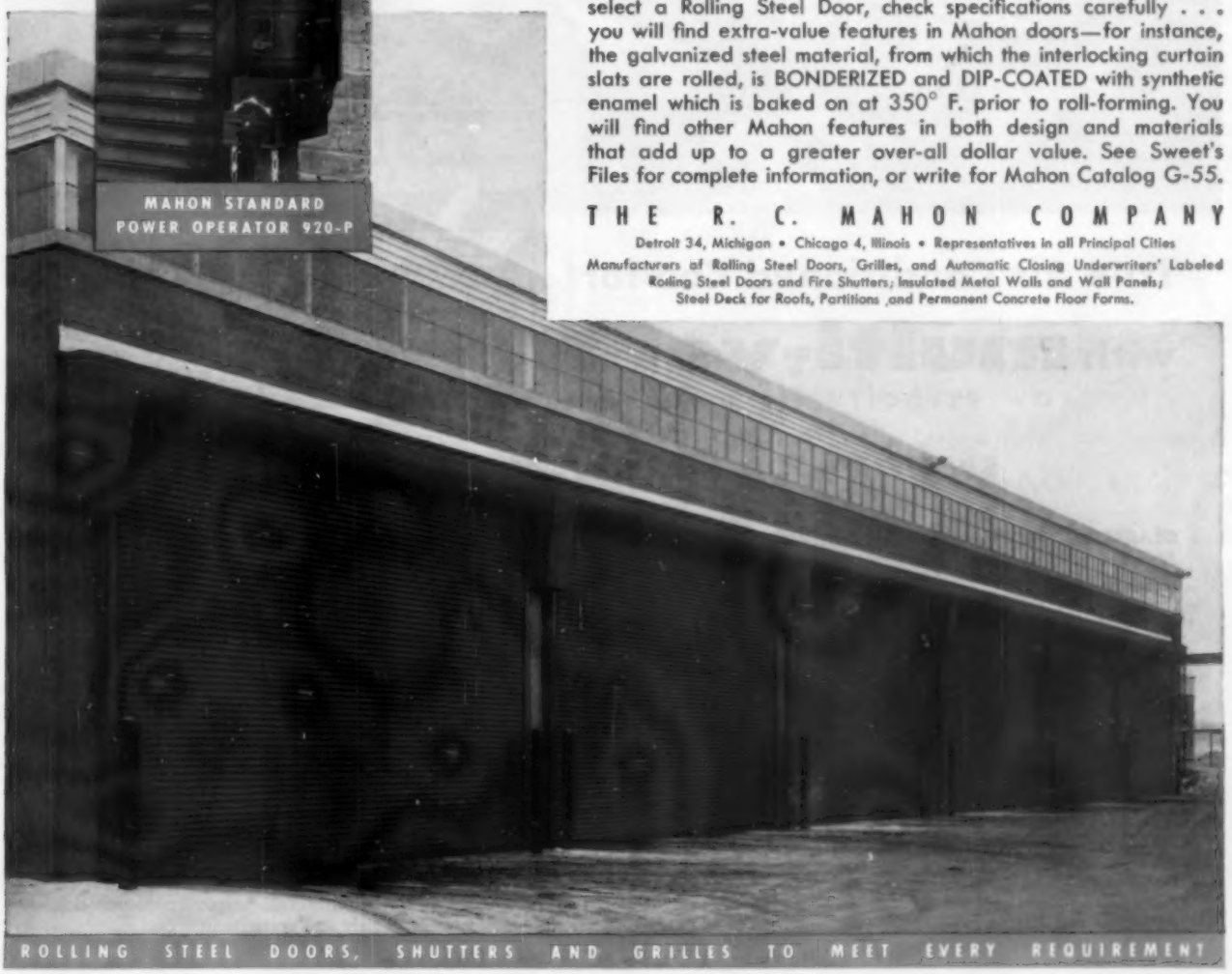

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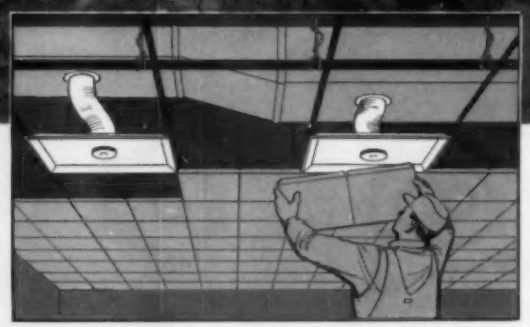

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May 1955

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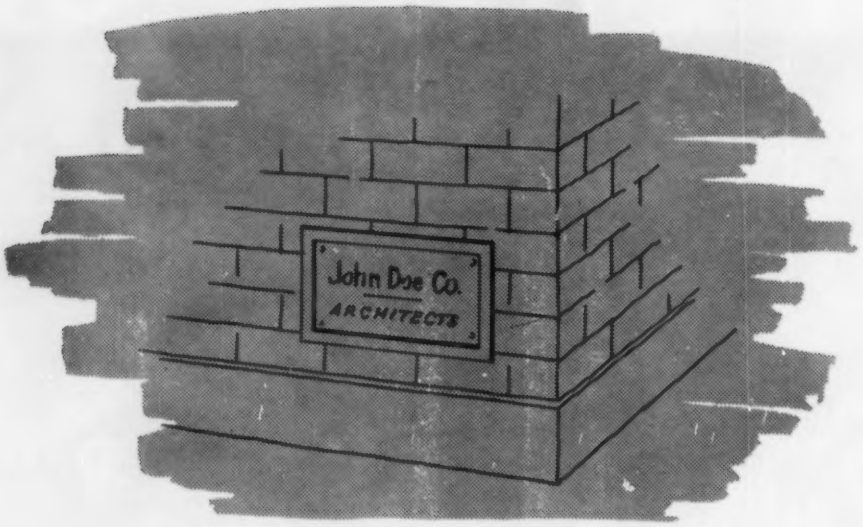

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*Patent applied for.

A National Bureau of Standards brochure: "Moisture Condensation in Building Walls," interestingly discusses Vapor Flow, and causes and control of Condensation. Use the coupon for free copy.

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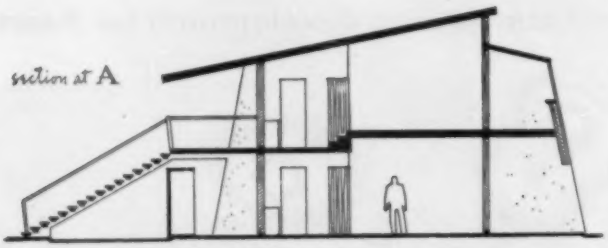
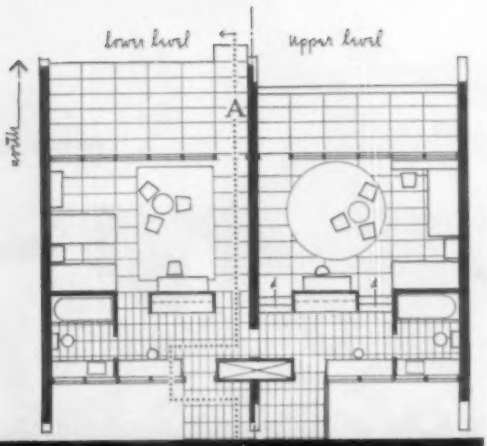
proposed hotel and related development for Puerto Rico

Architect Harmon H. Goldstone, New York, has completed preliminary plans for a development comprising a resort hotel with detached guest rooms, a golf club, about 100 lots (one to three acres) for private ownership, and facilities for the use of hotel guests, lot owners, club members, and daily visitors. The development will be built for Laurance S. Rockefeller on an ocean-front site about 20 miles west of San Juan, Puerto Rico. O'Kelly & Mendez, San Juan, will be associated architects; Robert Trent Jones, New York, is designing the 18-hole golf course. A spectacular point of land (*plan above*) projecting from the center of the 4000-ft bathing beach provides an ideal site for the hotel. The main structure features a barrel-vaulted roof and a circular driveway leading up to the second floor, which will house reception and administrative facilities as well as a bar and





lounges. An open interior stairway will descend to an outdoor dining terrace, crescent-shaped dining room, swimming pool, and cabanas. Some of the latter will be equipped for use as guest rooms. To take advantage of the natural potential of the site, and to insure quiet and privacy (and also to facilitate future expansion), guest rooms will be decentralized as detached units. Two-story blocks (*above*) containing either eight or twelve rooms will permit individual access to each suite, and unobstructed view of the ocean. Cross ventilation may be controlled by louvers built into folding panels. One and two-story cottages (*below*) may enjoy the hotel service or be rented on a semi-housekeeping basis. These rooms, also rentable in units of two or three, will have private terraces facing the sea and walled patios on the south side. All of the hotel buildings are to be of reinforced-concrete construction. White plaster has been selected for exterior walls, for its reflective quality. Native tile and Honduran mahogany will be extensively used. As a relief from the brilliant sunlight and bright foliage the color scheme of the buildings and rooms will be subdued. *Model photo: Wyn Morse*

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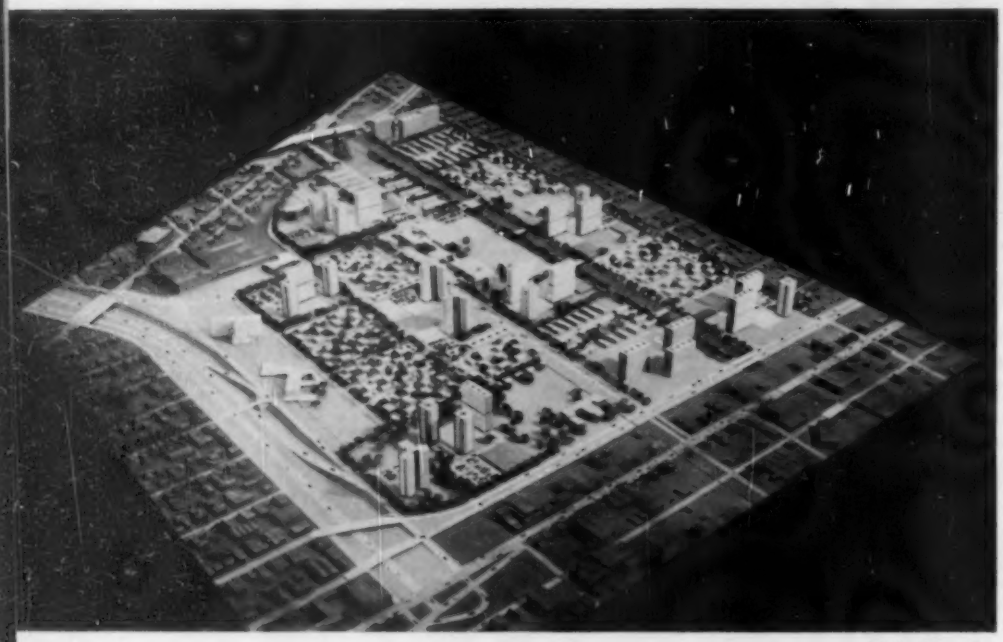

Photo: Flores Inc.

Properly implemented, the redevelopment plan by Architects Yamasaki, Stonorov, and Gruen for 142 formerly slum-ridden acres in downtown Detroit will be a model for other cities with similar problems. The sponsors feel that many families have moved to suburbs only because desirable living facilities were unavailable nearer their economic, civic, and cultural interests. This program is designed to reverse this trend and thus to restore the center of the city. The project, designed for the Citizens Redevelopment Committee, will provide 4000 living units for varied income groups, in structures ranging from one and two stories to multistory towers. Aside from concentrations of green spaces, each dwelling will have a private outdoor area. Since Detroit is dependent on private automobiles for transportation, 100% off-street parking is contemplated.

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Consolidated Foods' new plant, set in a 33 acre tract at River Grove, Ill., just west of Chicago, is a model of modern, functional design and operating efficiency. The project, which cost nearly $3,000,000, consists of two, one-story buildings. The one shown above, where automatic, mechanically-operated conveyors assemble orders and handle merchandise, houses processing and warehousing facilities of over 500,000 square feet; a department of 72,000 square feet for coffee roasting and packing and for handling teas, extracts and spices; a two-floor office of 24,000 square feet; an air-conditioned cafeteria for 650 employees; and an enclosed space for 20 railroad cars and 52 trucks.

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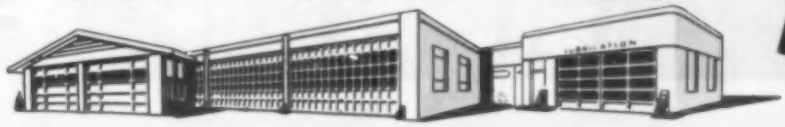

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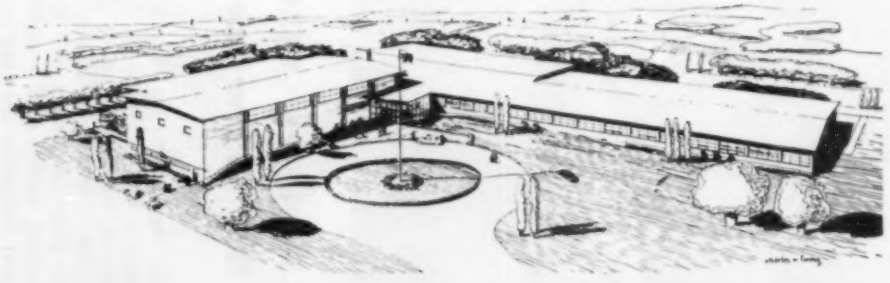
Contractor:
Juengel Construction Co., St. Louis

Architect:
Charles Lorenz, Kirkwood, Mo.

The new Pacific High School provides an excellent demonstration of the versatility of Laclede Straight Chord Steel Joists and their adaptability to specific architectural requirements.

By using two single joists with cantilever extended ends on each side of a three bay roof design, the number of joists required on the project was reduced by one-third and substantial saving resulted in material, time and labor.

Other Laclede Steels, too, including Multi-Rib Reinforcing Bars and Welded Wire Fabric, were used in this modern new building.



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luminous ceilings

Dear Editor: If it is not too late to recall "Luminous Ceilings—A Tool For Everyman" by Domina Eberle Spencer (*December 1954 P/A*), I would like to comment on the effects of indoor overhead brightness. Dr. Spencer refers chiefly to a transluscent sheeting covering the entire ceiling, through which the light from incandescent or fluorescent luminaires is diffused. Such a light source, she says, allows the architect to produce a more effective environment and she states, "Lighting should be designed to provide the luminous environment most suited to human visual requirements."

Effective is certainly the word for the dramatic luminosity of the Manufacturers Trust Company ceilings, for example, in Skidmore, Owings & Merrill's handsome building at 43rd Street and Fifth Avenue, New York. What it is like to work all day under such uniform brightness might bring varying answers, for the psychological effect of light is surprisingly little understood. Many would justly praise the high visibility in all directions. Some might confuse tension with elation, experiencing the unrelaxed sense of being constantly on display in a bath of light.

In any case, consideration of human visual requirements covers enormous ground, going beyond the eye as a camera, to include the whole person and personality.

Dr. Spencer claims that the more light we use the better we can see. The amount, she says, is largely a matter of economics. I think this should be amended to "the more light we use *correctly*," since it is not more light alone that we need, but more specific *modulation* of light—more of it in the places where it counts and less in between. In view of the frequent costly installations that squander wattage aloft and fail to earn their keep, I wonder if economics is the main answer.

Dr. Spencer finds that "The most obvious applications for luminous ceilings are in those locations in which exacting visual tasks are performed for long periods." She cites or recommends their use in schools, libraries, offices, operating rooms, stores, and even homes.

When all the aspects of human requirements are reconciled with the problems of installation and maintenance, it might develop that the best use for luminous plastic ceilings would be in the more transient places, like lobbies and corridors.

It has been demonstrated that serious work is accomplished more happily and efficiently when there is no distracting brightness overhead or anywhere else, and where, in lieu of pure daylight, a strong, clear, shielded light is focused directly on the work. In the field of peripheral vision restful shadows benefit both eyes and mind, which relax more easily when enjoying some reflex motion occasioned by distance accommodation and varying light intake. The sensing, perceiving apparatus tends to immobilize and tighten under monotonous stimuli—as has been painfully noted in the desert, or the Arctic snowfields, or the flat terrain of Florida. The shadows Dr. Spencer calls "unwanted" are the very ones that help keep the visual mechanism flexible and healthy. More tiring than sharp contrast is the deadly lack of it.

Agreed that the eye can not efficiently record too much contrast simultaneously (such as trying to see something when the sun interferes), and that glare is undesirable, and agreed that the eye works best "in a medium to which it has become adapted," must the brightness ratio between luminaire and broad surrounds be maintained at the conservative 3:1? Outdoor light, which is normally so easy on the eyes, often varies 20:1, while transitions of 5:1 in outdoor expanses are hardly noticeable. A brightness contrast of 10:1 in different parts of a room can seem quite comfortable. It may also be remembered that many people find the best medium for concentration is in a light-dark ratio of 100:1, in other words at night, using a good work light, encircled by comparative darkness.

The opposite condition, an entire ceiling of light, bright enough to provide 30-50 ft-c on the centers of activity beneath, could prove somewhat shattering to concentration: everything within range vies equally for a share of the attention, and veiled glare dominates the peripheral vision. If the ceiling as luminaire is pale enough to be less aggressive, the ft-c levels may not go above 15 where the light is needed most.

This is the case in a local store and lunch counter, where a ceiling 30′ x 60′ carries ninety-eight 40-w fluorescent tubes behind a vinyl rolled-strip covering. Over the months since the last servicing, tubes have burned out and the diffusing plastic has dimmed with dust. The corrugated dropped ceiling must be rolled back, taken down, and washed every six months, and more than half the tubes replaced. This means that for about half of each interval, the lighting tends to be ineffectually spotty.

Dr. Spencer speaks of the "optimum modeling of the human face" that takes place under a luminous ceiling and she praises the "soft, transparent shadows" made by the rebound of the ceiling light from walls and other surfaces. However, the interpenetration of these pale shadows, nullifying each other, is subtly disturbing, because evolution under the sun has taught us to look for shadows going in one direction. Where they overlap and blend, the modeling is less convincing. By contrast, objects form a relation to each other. The lack of it gives an incomplete realization of depth. As for attractiveness, light originating or reflecting below the face is notoriously more flattering than light casting downward shadows.

It is my belief that where sustained close eye work must be done by artificial light, institutional rooms are served best by incandescent downlights from the ceiling or walls, lensed, louvered, or recessed to prevent glare. Where possible, as in offices and reading rooms, auxiliary portable illumination is desirable because of its flexibility for individual needs.

As for operating rooms, I think I would prefer one with a big movable spotlight

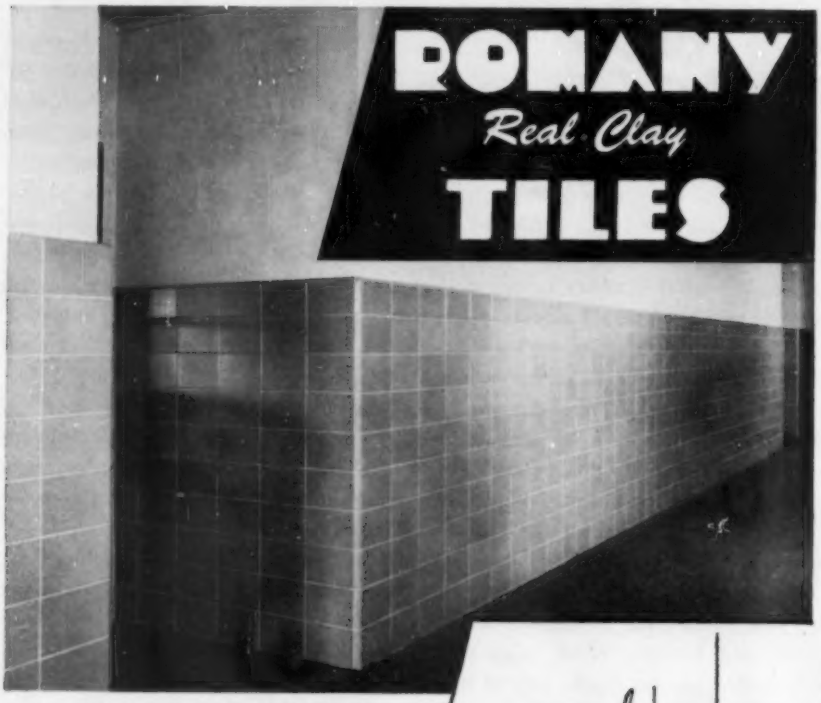
(Continued on page 16)

(Continued from page 15)

capable of giving depth and delineation to the intricacies of the human interior! A glaring ceiling (it would *have* to be that bright for surgery) plus one luminous wall recommended by Dr. Spencer, might distract even a surgeon without nerves.

Nevertheless, may I say enthusiastically that the luminous ceiling deserves an interesting future as a decorative element in architecture, for exhibition halls, theater entrances, and foyers in apartments, offices, and similar places. Dr. Spencer illustrates its striking use in a store front and a showroom. Besides the vinyl- and acrylic-plastic sheetings mentioned, the choice of colorful translucent materials is wide among plastics incorporating glass fibers and other synthetics in which designs are embedded. For most, due to their susceptibility to heat, fluorescent tubing would be indicated. The use of control switches could also add variety, by darkening or coloring certain portions at will. JESSIE PHELPS KAHLES

Spring Valley, N. Y.



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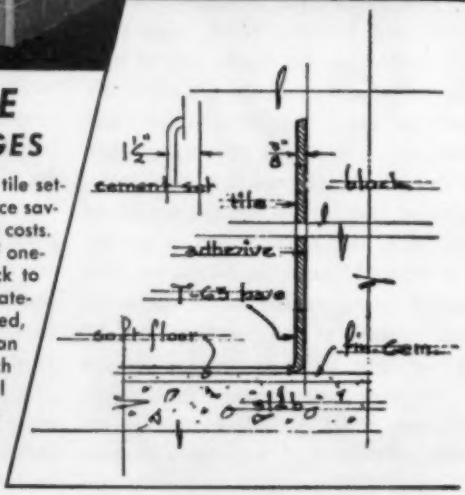

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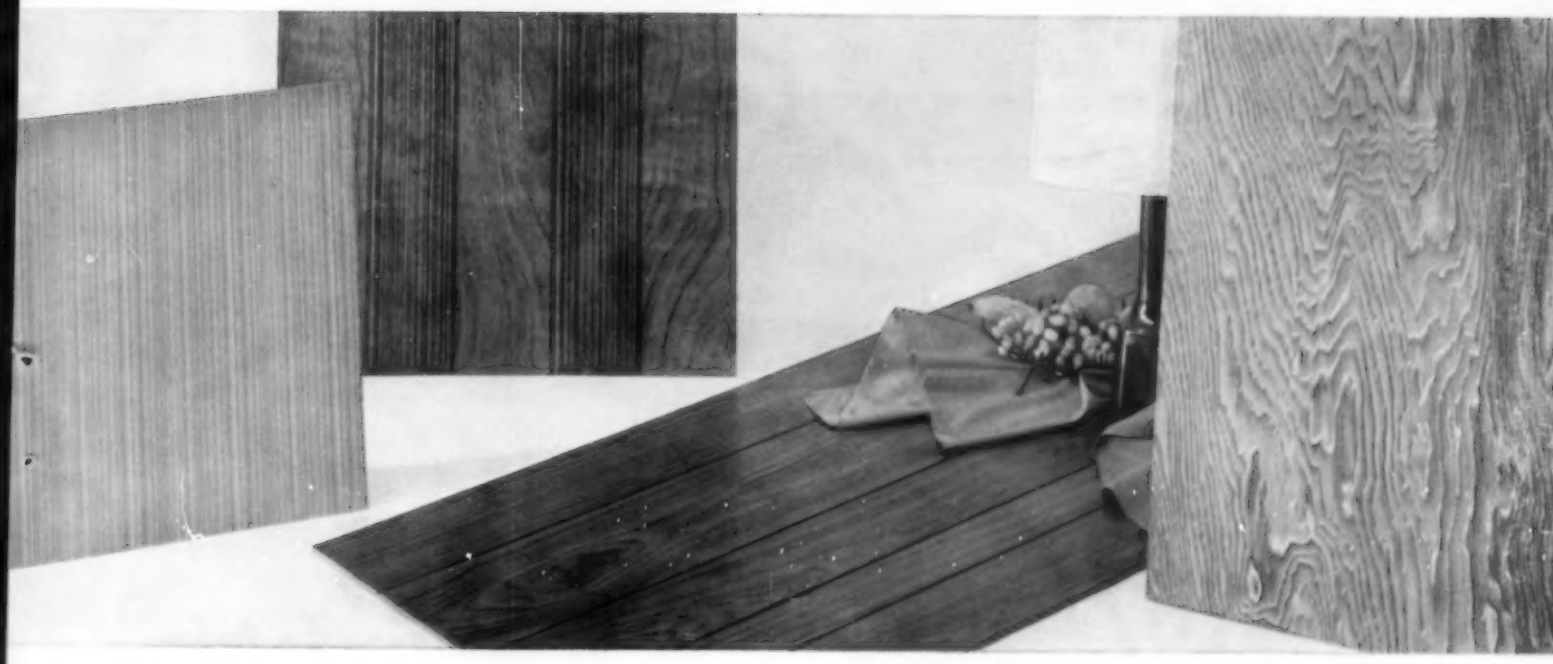
Dear Editor: Miss Kahles has made two basic mistakes. She has written about what it must be like to work under luminous ceilings, without (apparently) ever having tried it. And she has commented on the details of my paper without having read it carefully. Misunderstandings associated with the latter can be rectified by the present reply to her letter. In the former mistake, she reminds me strongly of many of my illuminating-engineer friends who reacted similarly to the idea of luminous ceilings about 10 years ago —before they had had any opportunity to experience working under them.

For example, when Miss Kahles discusses my statements on quantity she misinterprets them. I said that *if the field of view is sufficiently uniform*, the more light we have the better we can see. Therefore, there is no "correct" amount of light for each task and the amount of light we decide to use is largely a matter of economics. I did not say that this is true unless we design our luminous environment to satisfy the 3:1 adaptation-helios criterion. But if we do satisfy adequate-quality criteria, there is no upper limit to the amount of light we can employ with pleasure until we rival daylight.

For example, if we use the downlights suggested by Miss Kahles for "sustained close . . . work," quality criteria are violated for many lines of sight. Large quantities of light provided by downlights become intolerable to the human being who frequently views the downlights or their reflections as his eyes rove over the field of view.

But with luminous ceilings the story is entirely different, for now adequate-quality criteria *can be satisfied* for all lines of sight (if room reflectances are suitably chosen). To their astonishment, architects and illuminating engineers alike have discovered that it is possible to obtain the high visual acuity associated

(Continued on page 19)



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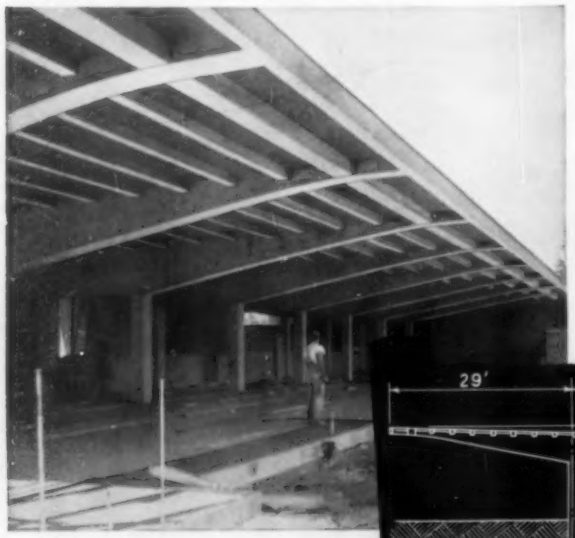
Merle Sidener School, Indianapolis. Architects: Daggett, Naegele & Daggett; engineers: Fink & Roberts; contractor: Cannon Construction Co.

Above: The all-concrete roof covers two rows of outside classrooms and a central corridor. With its overhang, the roof is 68 ft. wide. Below: 29-ft. concrete cantilever beams extend from corridor columns over the classrooms and exterior walls.



Right: cantilever beams extend across auditorium from opposite walls, meet at center. Floor here is lowered 4 ft.

Concrete and Cantilever Design Cut Costs for Modern School

Attractive, modern appearance distinguishes this fine school, completed at a cost of only 92¢ per cu. ft.—20 to 25 per cent less than the cost of other new buildings of comparable size and quality in the area.

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In the auditorium, cantilever beams from opposite walls join at the center of the room to form a 58-ft. roof span (see drawing below). Exposed concrete masonry, used for partitions and backup throughout the structure, assures maximum firesafety, economy and durability.

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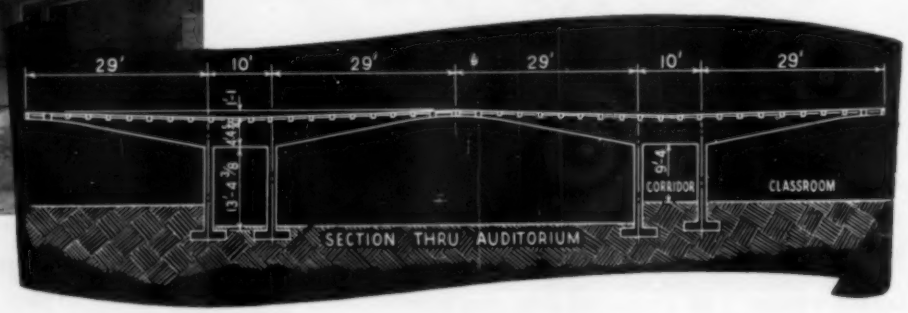

(Continued from page 16)

with large amounts of light without any sense of glare. A luminous ceiling does not look bright when one is working under it. I have never forgotten the reaction of one prominent architect on viewing his first luminous ceiling. "This is all very nice," he said, "but I can give you 50 ft-c with louvers and you haven't more than 10 here." To his chagrin, a light meter told him that he was then bathed in 50 lumens per sq ft. The eye is not a light meter. Once it becomes adapted it can work under luminous ceilings which provide 30, 50, 200, or even 1000 lumens per sq ft without a sense of glare. How many lamps we use above a luminous ceiling is largely a question of economics.

The 3:1 *adaptation-helios criterion* has also been misinterpreted. Miss Kahles says, "A brightness contrast of 10:1 in different parts of a room can seem quite comfortable." Apparently she does not realize that this is exactly what we get when we apply the 3:1 adaptation-helios criterion. The ratio of three is taken *with respect to the work*. Large areas may be three times as bright as the work or 1/3 as bright as the work. Thus, the ratio between the helios of floor and luminous ceiling may be as much as 9 or 10 to 1.

This criterion does not impose undesirable restrictions. It does not produce the monotony of an arctic snowfield. It allows, rather, all of the interest and variety which can be recorded on a Kodachrome film without under-exposing or over-exposing important areas.

The 3:1 criterion has been characterized as conservative. Yet Miss Kahles calls outdoor light "so easy on the eyes." If she would sometime venture outdoors with a helios meter as I have, she would find that many of the most interesting sunlit fields of view have even lower adaptation-helios ratios than required by the familiar 3:1 ratio. The interest and variety is in small details and in color. Large areas may vary in helios surprisingly little and permit the eyes to be simultaneously adapted to the entire field of view.

It is, of course, desirable to take into account the human aspects of vision. Perhaps the most important of these is the everchanging line of sight and the fact that *vision is impossible* without continual eye motions. Thus, there is a basic flaw in designing a lighting system for a single line of sight. The "strong, clear, shielded light . . . focused directly on the work" which is surrounded by deep "restful shadows" is possible at low levels of illumination but becomes utterly intolerable when the quantity of light is increased. As the eyes rove, they stray from the single position for which Miss Kahles has prescribed her downlights. If, in relaxing, her victim looks up at angle which she did not expect, he may encounter a helios ratio of a *million* to one. Even if he keeps his eyes down reading a glossy magazine, annoying images of her downlights are reflected into his eyes

(Continued on page 20)

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(Continued from page 19)

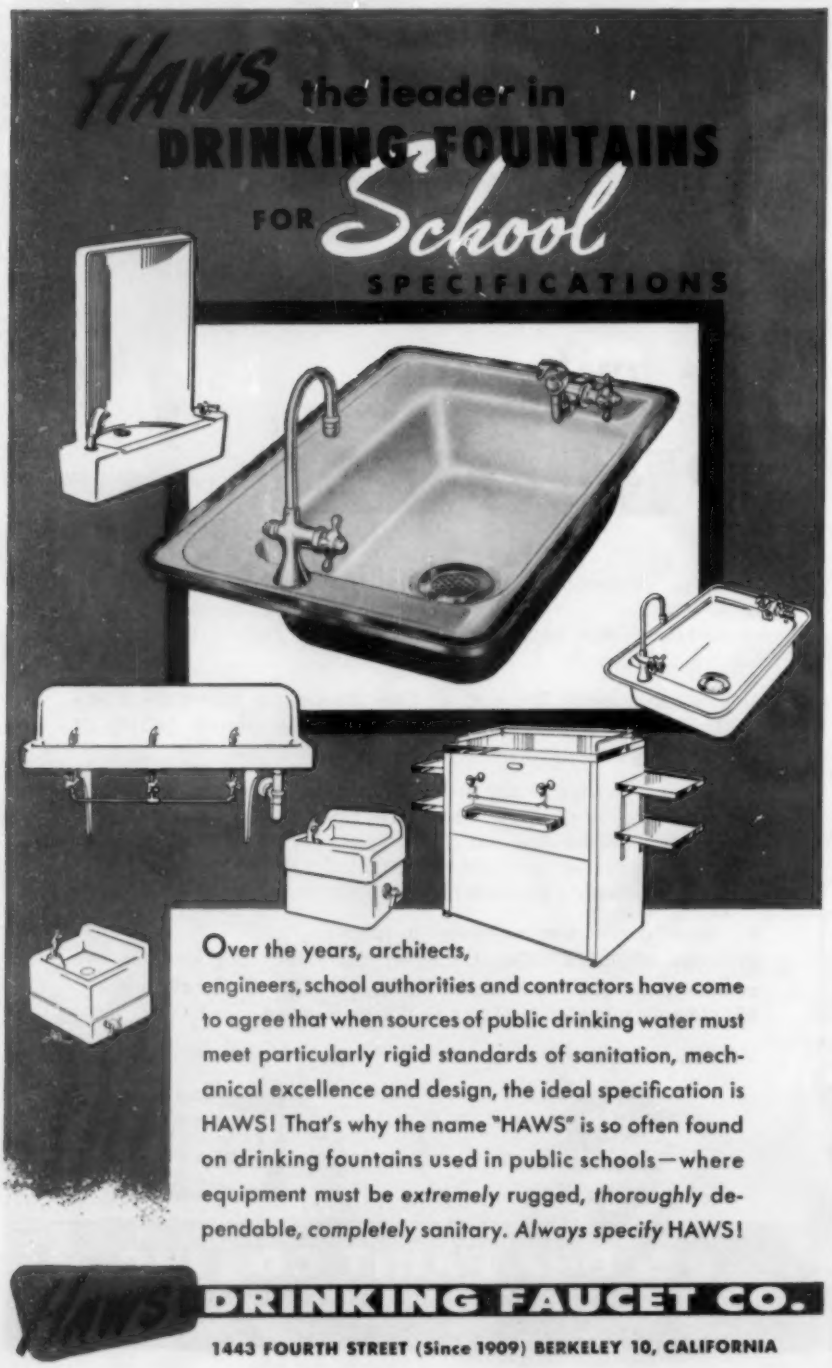
if he shifts his position or that of the magazine.

Except for the purpose of sleeping, a properly designed luminous ceiling provides a most restful luminous environment. Ordinarily the desk top and floor which form the background for the work are slightly darker than the work (perhaps by a factor of 3). The ceiling is generally slightly brighter than the work. Especially in a large room and if the work is of high reflectance, the helios ratio between work and luminous ceiling is very small. The luminous ceiling is neither aggressive nor distracting. And the continual eye motions necessary for relaxed vision are possible without encountering direct or reflected glare.

Perhaps Miss Kahles will soon be proposing luminous ceilings in many places where she does not yet consider them desirable. For she says, "As for attractiveness, light originating or reflecting below the face is notoriously more flattering than light casting downward shadows." This is just the situation we obtain if light floors are combined with luminous ceilings. (And it is, incidentally, the opposite of the ugly and confusing pattern of black shadows produced when the human face is viewed under a maze of downlights.)

I hope that next time Miss Kahles passes Fifth Avenue and 43rd Street, that she will go inside the Manufacturers Trust Company and will stay long enough to begin to experience the delight of reading, working, and living under luminous ceilings.

DOMINA EBERLE SPENCER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Dear Editor: I have been advised that Robert Billsbrough Price, Architect in the City of Tacoma, has been awarded a Citation by PROGRESSIVE ARCHITECTURE in connection with a Design Awards Program. This Citation, as I understand it, is in the Public Use Category for the Tacoma Fire Station No. 17.

It is with great pleasure that we learn that the architect of our selection for this public project will be granted this recognition.

In connection with the preliminary design work and through the actual preparation of the plans, Price worked closely with the staff of the Fire Department in laying out a station which will not only be functional but also will be pleasant living quarters for the firemen. Price explored all suggestions from the Fire Department staff and this office, relative to the interior and exterior of the building, in order that the final plans might completely meet our expectations of an economical, efficient, and attractive fire station.

The other day I had occasion to visit the site, and we can now visualize the result of his excellent work.

Let me congratulate the magazine on this design award program as some measure of recognition for professional excellency.

FRANK H. BACKSTROM
City Manager
City of Tacoma, Wash.

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SERIES T-2 FRAMES WITH SIDELIGHTS

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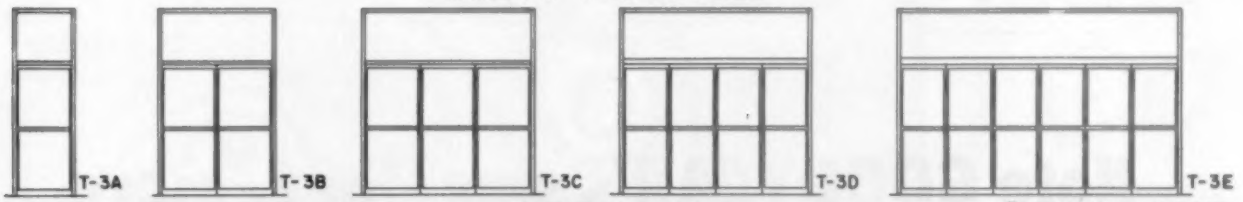

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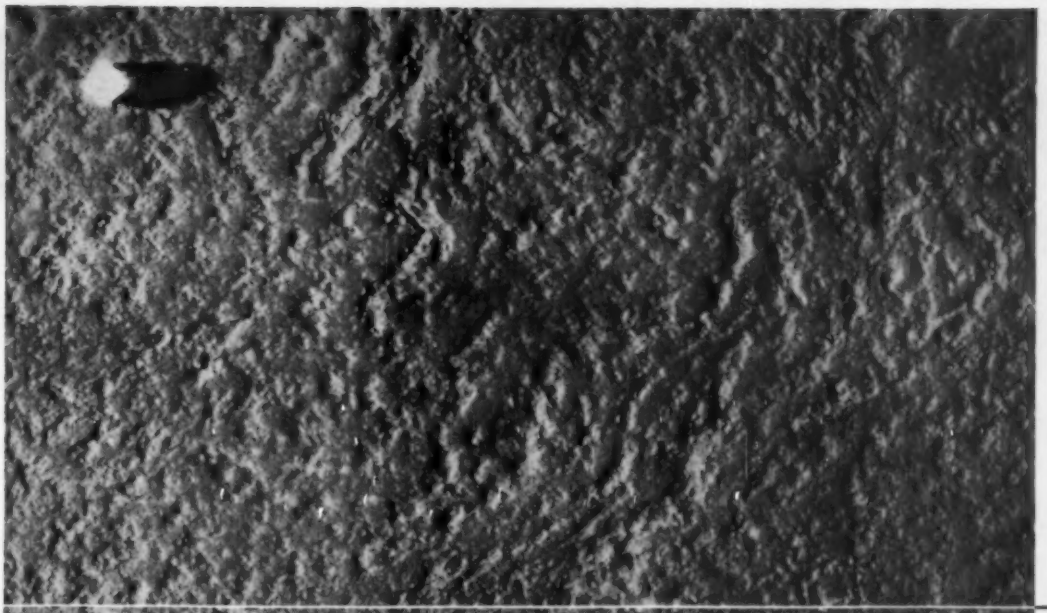

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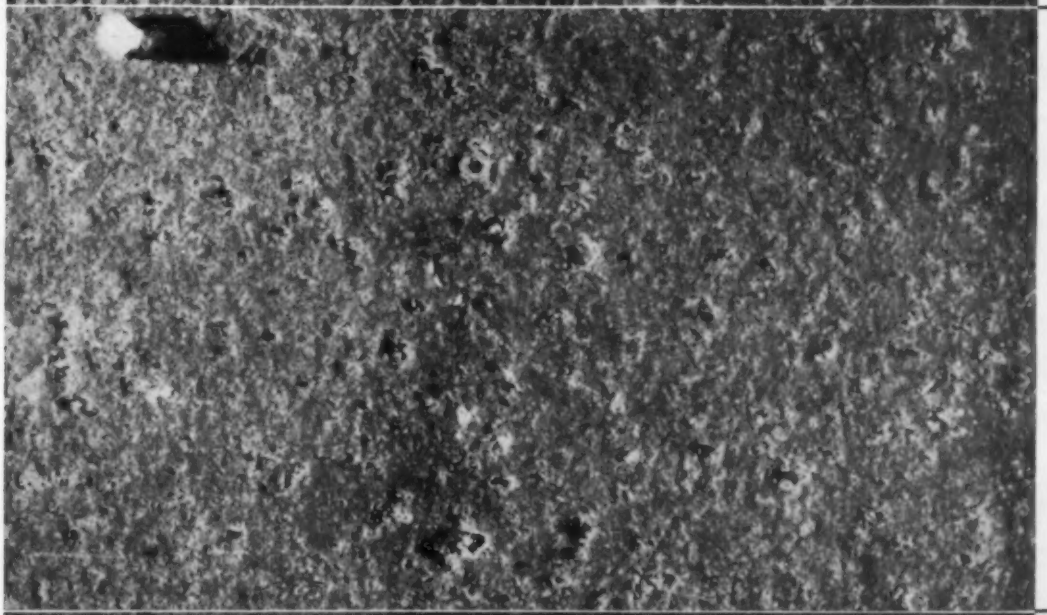

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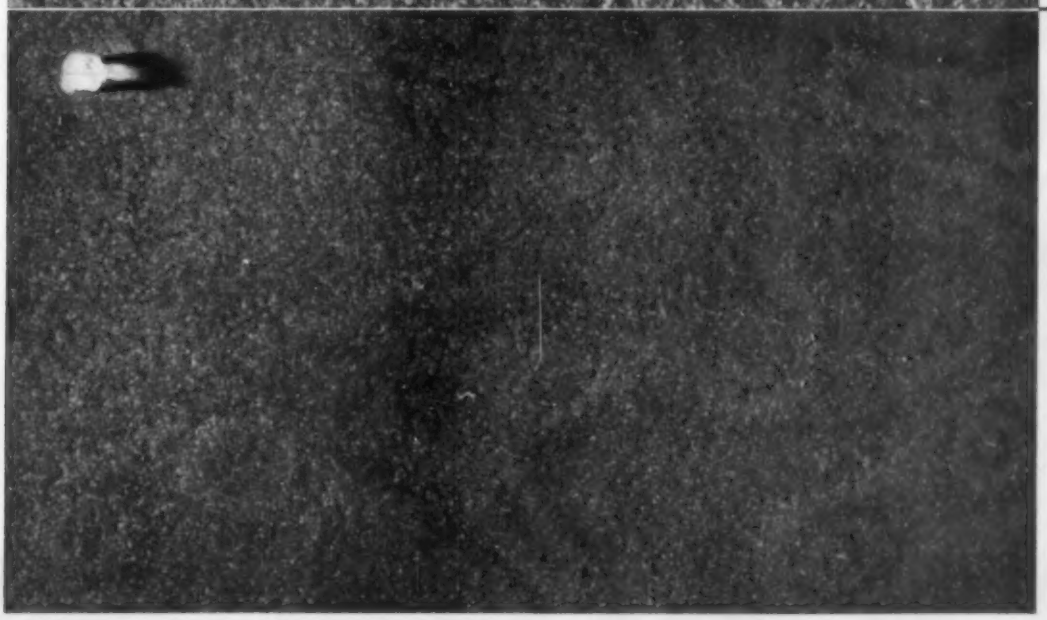

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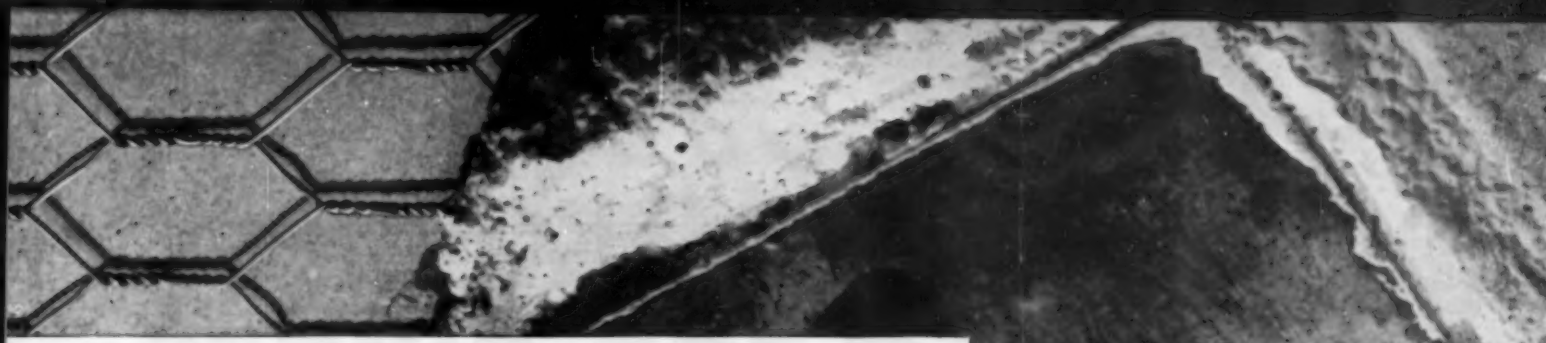
*Building Materials and Structures Report 141 National Bureau of Standards



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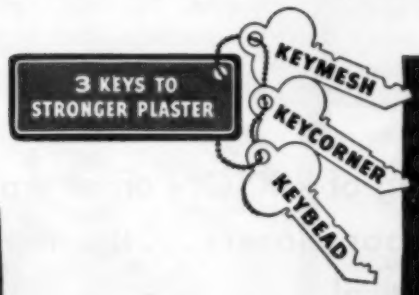

see our CATALOG in SWEET'S FILE

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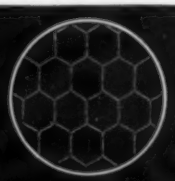


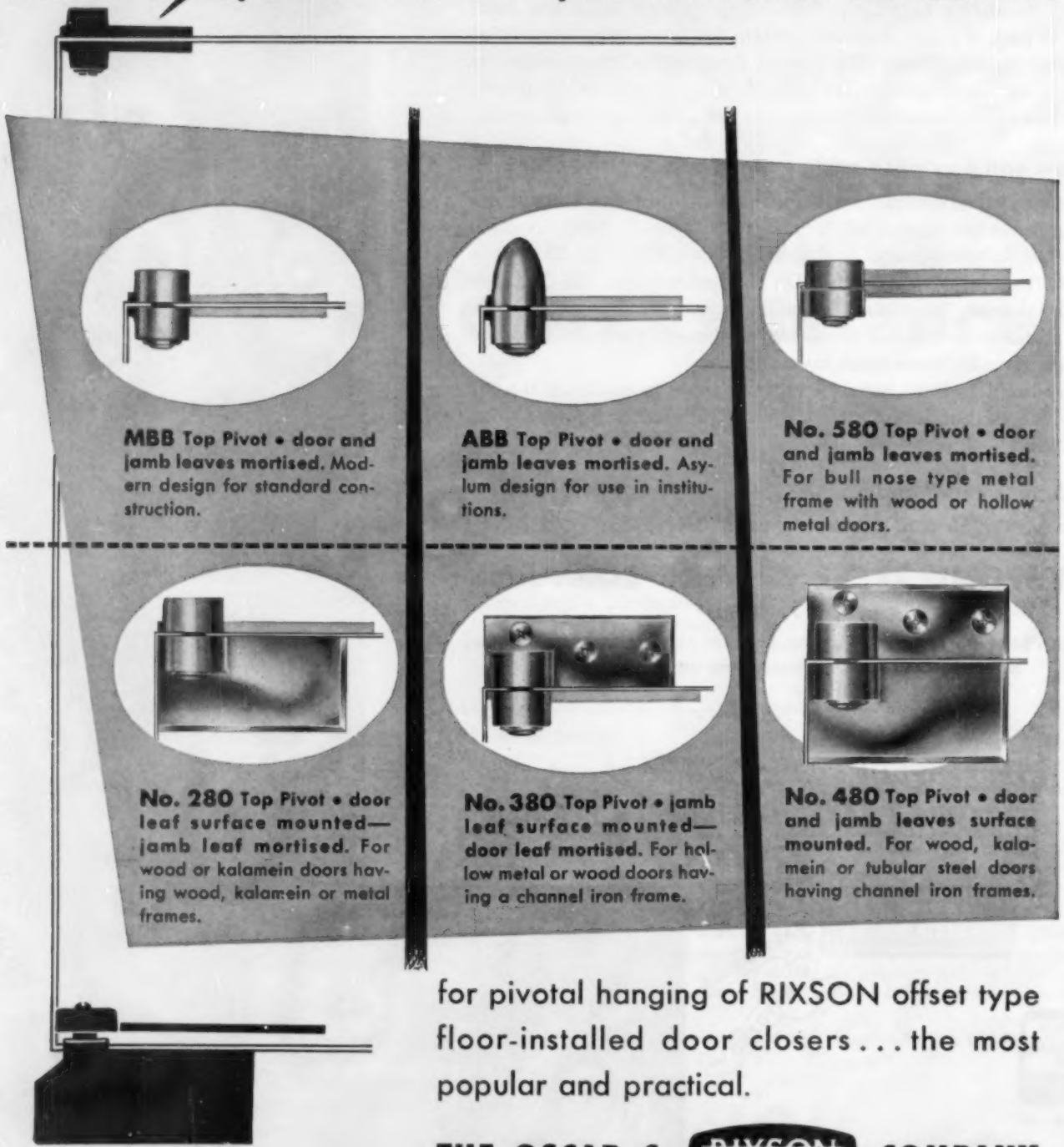
KEYMESH lath for over-all reinforcement. Made of galvanized woven wire. Especially recommended for ceiling construction.

KEYCORNER strip lath, preformed to fit snugly in corners. Lies flat when applied to joints. Galvanized to prevent rust streaks.

KEYBEAD corner lath with precision formed bead for outside corners. Open mesh assures strong, *solid* plaster corners.

now 6 RIXSON TOP PIVOTS

to meet all requirements of door–jamb construction and materials



MBB Top Pivot • door and jamb leaves mortised. Modern design for standard construction.

ABB Top Pivot • door and jamb leaves mortised. Asylum design for use in institutions.

No. 580 Top Pivot • door and jamb leaves mortised. For bull nose type metal frame with wood or hollow metal doors.

No. 280 Top Pivot • door leaf surface mounted—jamb leaf mortised. For wood or kalamein doors having wood, kalamein or metal frames.

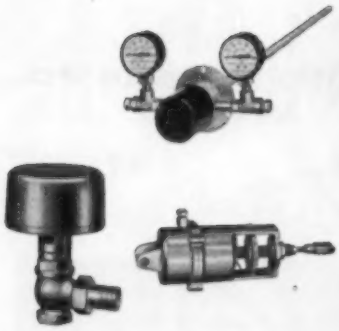
No. 380 Top Pivot • jamb leaf surface mounted—door leaf mortised. For hollow metal or wood doors having a channel iron frame.

No. 480 Top Pivot • door and jamb leaves surface mounted. For wood, kalamein or tubular steel doors having channel iron frames.

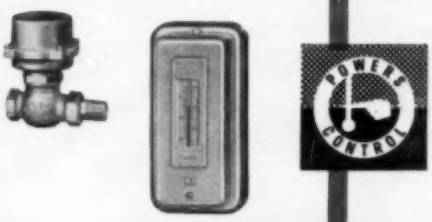
for pivotal hanging of RIXSON offset type floor-installed door closers . . . the most popular and practical.

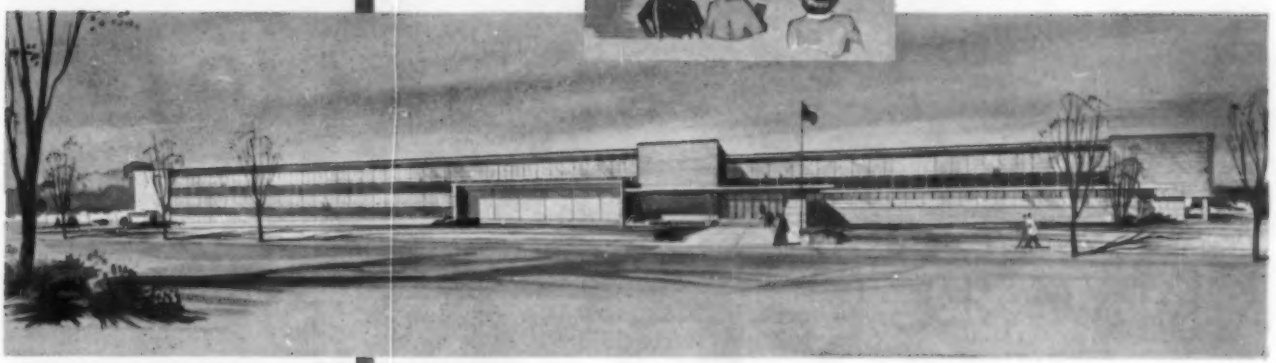
THE OSCAR C. RIXSON COMPANY

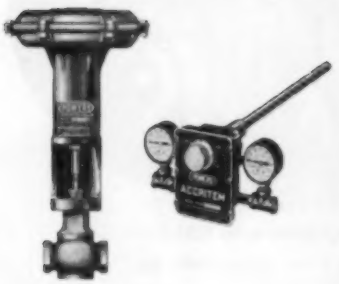
9100 w. belmont ave. • franklin park, illinois



Powers Packless Control Valves
Eliminate packing maintenance and prevent leakage of steam or water.







Only a few Powers Controls for heating systems, shower baths and water heaters are shown here.

(b96)

ARCHITECTS: Grassold-Johnson and Associates, Milwaukee, Wis.
ASSOCIATED WITH: The Board of School Directors. Fred E. Wegner, Architect
CONTRACTORS: Heating, S. V. Hanley Co. • Plumbing, Kuetemeyer Plbg. & Htg. Co.

Northwest Senior High School Milwaukee's new "school of the future"

POWERS *Automatic Temperature Control*

is being installed throughout this modern $4,500,000 building

For the classrooms and other heated and ventilated spaces Powers control will provide utmost comfort and fuel economy with lowest operating and maintenance cost. Some Wisconsin schools using Powers systems report dependable operation after 30 to 50 years.

Powers individually controlled shower baths and groups of lavatories and gang showers will be unsurpassed for safety, comfort and economical use of water.

Powers controls, on hot water service heaters and swimming pool heater, will prevent waste of fuel from overheated water and give years of dependable service.

You, too, Can Solve Most of Your Temperature Control Problems with Powers — one dependable source, one responsibility. Consult Powers on all temperature control problems. Our more than 60 years of experience will save time and help you get the right control for your requirements.

THE POWERS REGULATOR COMPANY

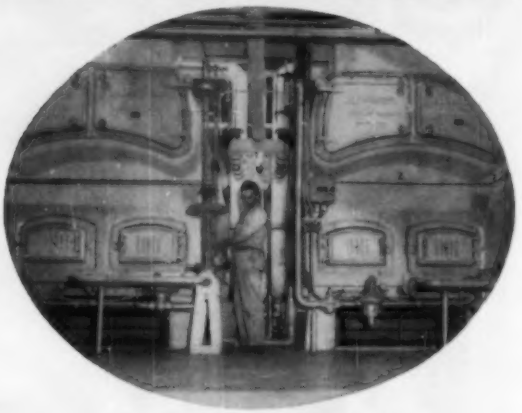
SKOKIE, ILLINOIS • *Offices in 60 Cities in the U. S. A., Canada and Mexico*

HOW "RESERVE STEAM" HELPS MRS. BAIRD'S BREAD CO. KEEP PACE WITH GROWING MARKETS

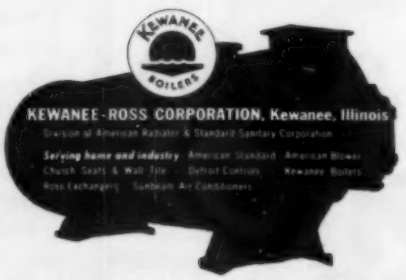
KEWANEE reserve plus rated

. . . BOILERS PROVIDE FOR FLUCTUATING LOADS AND FUTURE EXPANSION

It's "full steam ahead" for growth at Mrs. Baird's Bread Co., Dallas, Texas. That's because management looked well into the future in planning the company's modern plant. Take the boilers as an example. Past experience proved that boilers with reserve capacity could economically provide sufficient power to meet the needs of expansion. Kewanee Reserve Plus Rated Boilers were installed, with 50% extra power built in for additional capacity requirements. When fluctuating loads demand more steam at once . . . it's there with Kewanee. When expansion calls for more steam . . . it's there with Kewanee. So, when you consider boilers, don't be misled by promises that a boiler delivers enough steam to meet average daily requirements. Look for reserve to assure performance beyond the call of usual duty. Consider Kewanee Boilers, rated on nominal capacity to operate at "cruising speed". You'll get greater efficiency at lower cost, plus longer boiler life. Only a boiler rated on nominal capacity can make that guarantee.



Here are 2 Kewanee No. 5188 Boilers installed at Mrs. Baird's Bread Co.



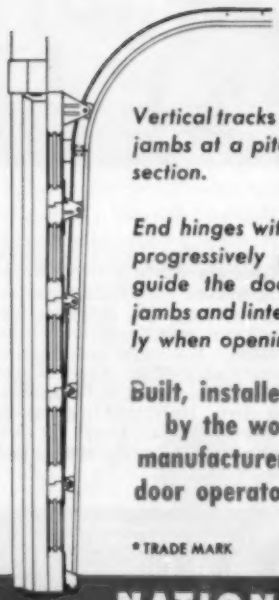
YOU can depend on KEWANEE engineering

a Weathertight "Wall" with THE "OVERHEAD DOOR" TRADE MARK

INDUSTRIAL—COMMERCIAL—RESIDENTIAL

MIRACLE WEDGE*

***Weathertight Closure** . . . originated by Overhead Door Corporation in 1921, this feature is the basis of construction of every door, from the smallest residential garage door to the largest industrial door.*



Vertical tracks incline away from jambs at a pitch of ¼" per door section.

End hinges with roller sleeves of progressively graduated height guide the door tightly against jambs and lintel, yet free it quickly when opening.

Built, installed and serviced by the world's largest manufacturer of doors and door operators exclusively!

*TRADE MARK

For easy solution of heating problems, employee protection, traffic speed-up and lasting satisfaction under constant hard use, insist upon The "OVERHEAD DOOR," first and finest in its field. This quality door is built of wood, steel or aluminum in any size to fit the opening . . . a "custom" door at production line prices. Consult our engineering and research staff about unusual installation problems.

Equip All Doors with

ELECTRIC OPERATORS

and Remote Control

Electric operation from a centralized control board pays for itself in man-hours saved. It lengthens the life of the doors because they move at a steady speed proper for their size and weight, without sudden strains.

OVERHEAD DOOR CORPORATION

Hartford City, Indiana

America's Great Name in QUALITY DOORS...

MANUFACTURING DIVISIONS:
HILLSIDE, N.J. CORTLAND, N.Y.
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In Atlanta -- Youngstown Buckeye Conduit installed in Georgia State Office Buildings

WHY YOUNGSTOWN BUCKEYE CONDUIT IS BETTER

Youngstown is the one manufacturer who makes rigid steel conduit from ore to finished product. This enables Youngstown to control the complete manufacturing process—your insurance that each length of "Buckeye" is made of top-grade steel.

Mechanical Contractors & Engineers, Inc., Electrical Contractor
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Youngstown

BUCKEYE QUALITY YOUNGSTOWN SERVICE **CONDUIT**

●Planned and built for years to come, these modern Georgia State Office Buildings have wiring protected by Youngstown Buckeye rigid steel conduit. It was only natural that Buckeye was specified. Made of top-grade steel, Buckeye dependably guards any electrical system against such damaging elements as water, moisture, vapor, dust and dirt. Its durability makes Buckeye rigid steel conduit ideal for wiring systems that must be permanently **safe.**

THE YOUNGSTOWN SHEET AND TUBE COMPANY *Manufacturers of Carbon, Alloy and Yoloy Steel*

General Offices: Youngstown, Ohio - District Sales Offices in Principal Cities

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - BAR SHAPES - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - RAILROAD TRACK SPIKES

Home of Mrs. I. Zimmerman, Manchester, N. H.
Designed by Frank Lloyd Wright

From the first rough sketches . . .

Frank Lloyd Wright specified Colorundum floors for their warmth of color and beauty."

Mrs. I. Zimmerman, Manchester, N. H.

"Look at these photographs of our exciting new home and you can see why we just wouldn't consider drab, colorless concrete. From the first rough sketches," writes Mrs. Zimmerman, "we planned attractive, luxurious Colorundum for the patio and the service areas . . . especially when we found out how little it cost!"

Colorundum is the ideal solution to the problem of exposed or uncarpeted areas of plain concrete. It provides colorful, wear-resistant floors at just a fraction of the cost of tile.

Colorundum is far more resistant to traffic than ordinary concrete floors. It is a balanced formulation of nonslip aggregate (next to the diamond in hardness), water-repellent compounds, and durable colors . . . contains no silica, quartz, metal or sand. It is easy to keep clean, and since it contains no metal, it will not rust or stain.

Colorundum is available in eleven decorator colors.

Fused color. Not a paint or coating! Colorundum is troweled into the concrete topping and becomes an integral part of the surface, producing beauty and durability.

A Subsidiary of Chemical Corporation

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A. C. Horn Co., Inc.
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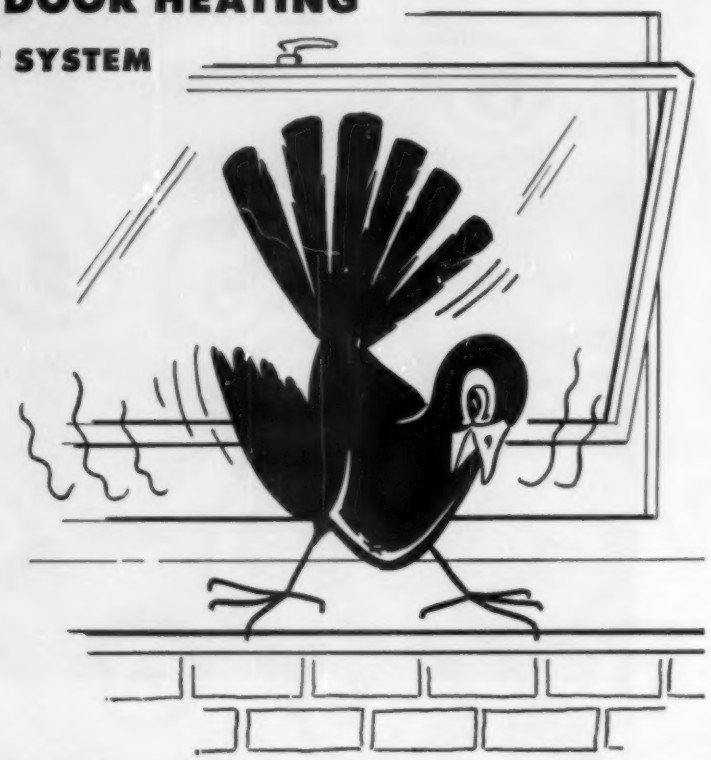
OPEN WINDOWS *are*

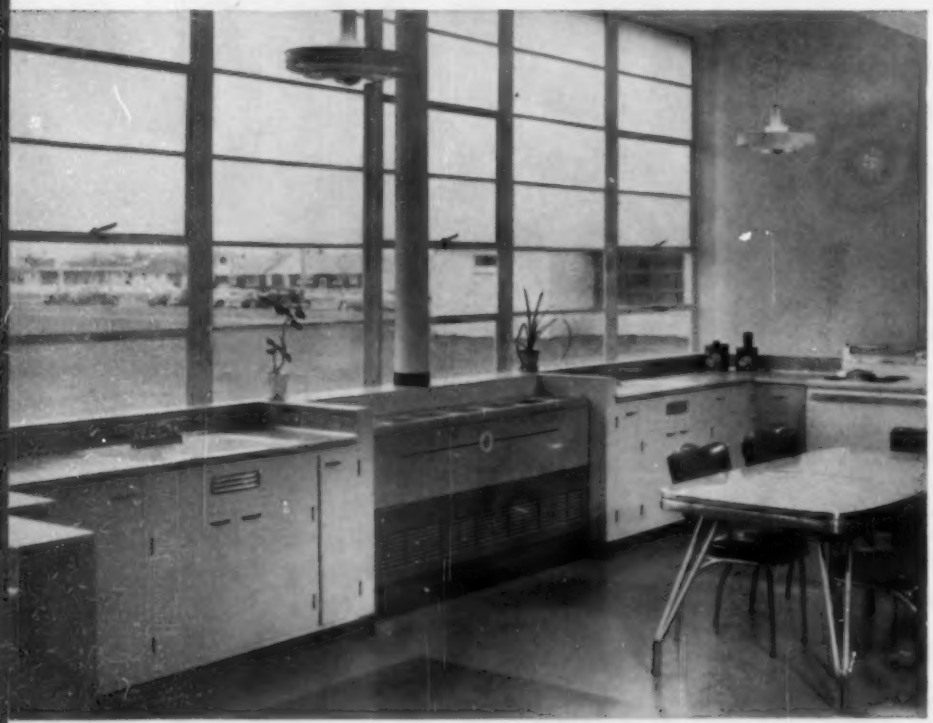
FUEL DOLLARS AREN'T WASTED ON OUTDOOR HEATING WHEN HERMAN NELSON DRAFT|STOP SYSTEM COOLS THE CLASSROOM.



NO school can afford open window ventilation, if it counts the cost. Fuel dollars are wasted every day of the heating season. And, in addition to this needless extravagance, the problem of the overheated classroom remains unsolved.

Herman Nelson DRAFT|STOP eliminates both the waste and worries of overheating. In fact, the major function of this system during school hours is to cool rather than heat. As sun, lights and students add to the heat load, it goes to work, automatically introducing outdoor air in sufficient quantities to keep room temperature at comfort level. And, to complete the economy picture, Herman Nelson eliminates chilling window downdrafts without the use of heat.

Why pay a premium for open windows and overheated classrooms? All the comfort features of the Herman Nelson System are yours at a saving—a saving that starts with the first day of operation and continues through the years. For complete information, see our catalog in Sweet's Architectural File, or mail coupon on adjoining page.



WASHINGTON. They cook in comfort at Pasco Senior High School, Pasco, Wash. Note cavity wall construction which permits passage of lally column through outdoor air opening of the Unit Ventilator—another example of the flexibility in Herman Nelson design. Superintendent of Schools: Herman F. Jaeger; Architect: Victor Louis Wulff; Engineers: Kendall M. Wood & Associates.

DRAFT STOP

Provides
COOLING, HEATING
VENTILATION, ODOR CONTROL
DRAFT ELIMINATION
All at minimum cost

herman nelson
UNIT VENTILATOR PRODUCTS

AMERICAN AIR FILTER COMPANY, INC.

SYSTEM OF
CLASSROOM COOLING, HEATING AND VENTILATING

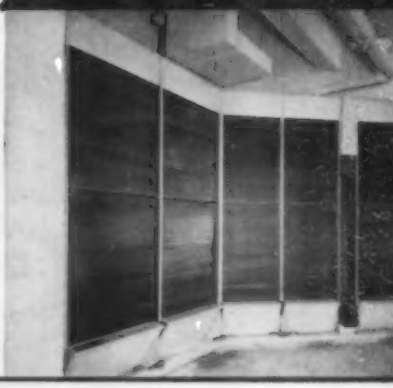
"for the Birds"!

MICHIGAN. Long, low and handsome. Edmonson Elementary and Junior High School, Willow Run, Mich. Installation cost of Herman Nelson DRAFT|STOP System was materially reduced by laying piping on depressed slab in exposed perimeter trench (see inset), with unit ventilators and utility cabinets serving as cover. Superintendent of Schools: Albert C. Johnsen; Business Manager: A. A. Wiench; Architect and Engineer: W. T. Anicka; Mechanical Contractor: United Heat Engineering Co.

TENNESSEE. Strictly modern and modest in cost. The new C. T. Kirkpatrick School, Nashville, Tenn., featuring Herman Nelson DRAFT|STOP Unit Ventilators, was built at a cost of $9.60 per square foot. Superintendent of Schools: W. A. Bass; Architects: Taylor & Crabtree; Engineers: I. C. Thomason & Associates.

OTHER AAF herman nelson SCHOOL PRODUCTS

CLEAN AIR CUTS MAINTENANCE COSTS
AAF Multi-Duty Self Cleaning Filters assure clean air automatically for air conditioning system serving Berkeley (Calif.) High School auditorium.



A VENTILATING UNIT WITH THE "HUSH" BUILT-IN
Herman Nelson Auditorium Unit-Ventilator, featuring the exclusive acoustical silencer for "whisper quiet" operation, is the answer to heating, cooling and ventilating multi-purpose rooms, cafeterias and other large space areas.

SOLUTION TO SPOT HEATING PROBLEMS
Herman Nelson Console Heaters are ideal for heating entrances, corridors and other isolated spaces. Available in twelve attractive models for floor, wall, ceiling or inverted placement.

American Air Filter Co., Inc.
Dept. PA-5
Louisville 8, Kentucky

I would appreciate receiving literature describing the following products:

- ☐ Classroom Unit Ventilators
- ☐ Multi-Duty Air Filters
- ☐ Console Heaters
- ☐ Auditorium Unit Ventilators

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Small offices become executive suites...with Modernfold

Even the smallest offices can be made roomier, more efficient and happier places to work.

All it takes is MODERNFOLD—the door that folds completely *within* the door frame. That's especially important in very small rooms, where a MODERNFOLD door can add 10% to the usable floor space. Just by eliminating old-fashioned door swing, you make room for another chair, table or file cabinet.

To workers in partitioned cubicles, a MODERNFOLD door is like a promotion. It gives them the working environment and prestige of a private office.

Office managers appreciate MODERNFOLD doors for a different reason; their construction. Washable vinyl covers a double strength steel frame that operates smoothly, year after year. And MODERNFOLD offers dozens of cheery morale-boosting colors.

Your clients will marvel at the ingenious way MODERNFOLD doors magically make small offices more roomy and attractive at so little cost!

The MODERNFOLD distributor (listed under "Doors" in classified directories) will be glad to show you the Custom line. Your building supply dealer has the Spacemaster line available. Or write New Castle Products, Inc., Dept. E31, New Castle, Indiana. In Canada: New Castle Products, Ltd., Montreal 6.

Full Details in Sweet's File

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DOORS

© 1955, NEW CASTLE PRODUCTS, INC.

Bradley University's new library building at Peoria, Ill. *Architect:* Gregg & Briggs; *General Contractor:* V. Jobst and Sons, all of Peoria.

FLOORS BUILT WITH OPEN-WEB JOISTS PROTECT LIBRARY FROM FIRE HAZARD

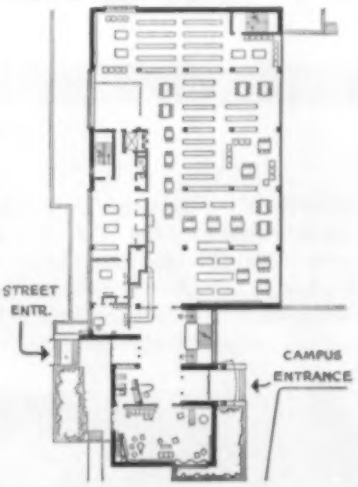
The new library at Bradley University, Peoria, Ill., is a three-story, completely air-conditioned, brick-and-steel building of contemporary design, with a capacity for 150,000 volumes. To protect the library and its contents from the hazard of fire, the architects specified floors built with Open-Web Steel Joists combined with concrete floor slab and vermiculite plaster ceiling.

This type of floor construction provides fire-resistance up to four hours, depending on the thickness of the slab and the kind of plaster used.

The architects also gained other advantages through the use of Bethlehem Open-Web Joists. The floors must support heavy loads of books, and the steel joists have the required strength and rigidity without danger of warp or sag, at the same time providing large areas of column-free space, with consequent freedom for rearrangement of stacks and non-bearing walls to meet changing requirements.

In addition, the use of steel joists helped to reduce building costs. The joists reached the job site fully marked, ready for placing, and the installation of ductwork for air-conditioning and of wiring was simplified by running them through the open webs.

This plan of the first floor shows how easily the floor space can be rearranged without disturbing the permanent structure.



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM OPEN-WEB STEEL JOISTS

BETHLEHEM STEEL

Surround Your Customers with the Practical Luxury of

Briggs Beautyware

Statistics show that the bathroom has an ever-increasing influence on the home buyer—*the finer the bath facilities, the faster the sale.*

Briggs has led the field in providing the building industry with the practical luxury of top quality, truly modern bath fixtures—*at a realistic price.*

And Briggs has set the pace in pioneering new safety, utility and ease of installation features—in the merchandising of color at popular prices—in the promotion of the second bathroom as "The New Standard for American Living."

Read below for additional facts about Briggs leadership in engineering, manufacturing and merchandising. Join the fast growing ranks of home building leaders who *surround their customers with the practical luxury of Briggs Beautyware.*

BRIGGS MANUFACTURING COMPANY

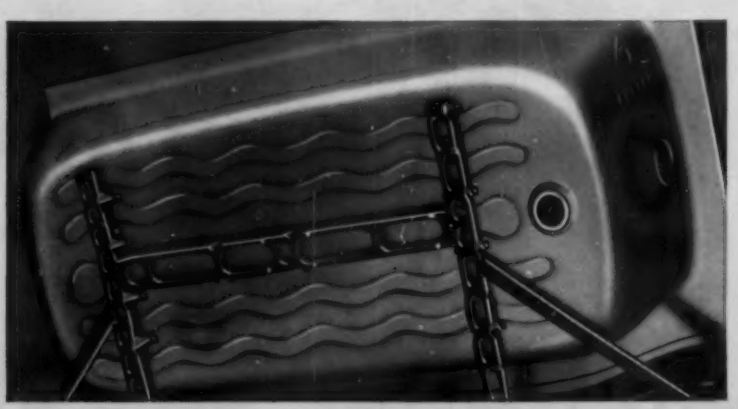
300 Buhl Building • **Detroit 26, Michigan**

Refer to Sweet's Catalog—Architectural File 24A, Light Construction File 9B, or A.I.A. File 29H.

B-701 LaSalle Tub
B-6402 Carlton Closet
B-3250-HS Whittier Lavatory

Delightful distinctive design in fresh, bright colors is yours with Briggs Beautyware—at the cost of many *white* bath sets. Briggs craftsmen have developed new techniques in forming and finishing that provide new bonus benefits in contour, color and *value.* With Beautyware, two bathrooms in color can be a practical reality for a big majority of your customers.

Long-lasting quality is inherent in Beautyware design and materials. Bathtubs feature the traditional durability of the finest, heavy-gauge enameling steel, *pressure-formed* to exacting contours and reinforced with special rigid frame members. It is the surest blend of strength and scientific weight—with exclusive dividends in easiest handling and installation.



Surfaces hard as glass are fused to *every* Beautyware fixture —porcelain enamel fused to steel, and high-density vitreous china. Briggs' exclusive pioneering in manufacturing processes for Beautyware bathroom fixtures has brought *new* achievements in super-hard fixture finishes—glistening, easy to clean, and defiant of stains, acids and fading!

Important utility features—such as the square, straight ends and the leak-proof wall flange, found on all Briggs tubs—make Beautyware the most practical as well as the most appealing choice. The architect prefers Beautyware for functional styling, the builder appreciates its practical appeal, the plumber has confidence in Briggs' technical excellence.

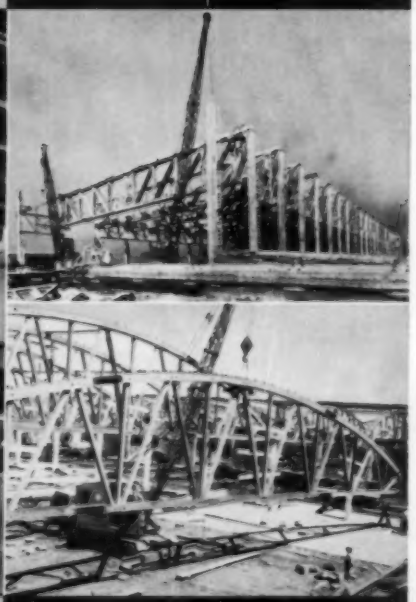
Do You Consider

THESE 4 IMPORTANT FACTORS

WHEN YOU SPECIFY GLUED LAMINATED WOOD MEMBERS?

ENGINEERING reliability is a must. For your protection, our first and most important job at Rilco is dependable engineering. Our large technical staff is of proven competence . . . will cooperate with you to develop the best design for your job, suggesting economies based on long experience.

PRODUCT QUALITY Every Rilco arch, rafter, truss or beam is custom-built by experienced personnel and modern equipment to meet your specific requirements. Rigid specifications are followed using specially kiln-dried and graded lumber, properly mixed adhesives, proper temperature and gluing time. Quality control guards every step of the fabrication. Members arrive trimmed and drilled ready to erect.



SERVICE Our service engineers are experienced Rilco building consultants who can advise and recommend the type of member best suited for your job. Working out of our conveniently located district offices, our engineers will gladly help with any specific design problems.

DELIVERY delays cost money and create ill will. Rilco plants are strategically located for shorter hauls and complete assurance of delivery when promised.

Your reason for specifying Rilco arches, beams, rafters or trusses for your next school, church, gymnasium, store, commercial or industrial building could be any of the above. Together they add up to an important ingredient . . . integrity. For more information write:

RILCO

works wonders with wood

RILCO LAMINATED PRODUCTS, INC.

St. Paul, Minnesota • Wilkes-Barre, Pennsylvania • Fort Wayne, Indiana • Manhattan Kansas • Tacoma, Wash.

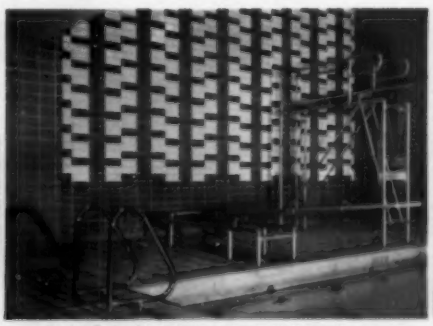
Cost-cutting combination: GLAZED and UNGLAZED

STRUCTURAL FACING TILE

Here is a way to keep school building and maintenance costs down — and make classrooms more cheerful, too.

Structural Clay Facing Tile builds load-bearing partitions and permanent, colorful interior finish in one operation. For this kindergarten, natural clay unglazed units and soft green glazed tile provide a pleasing contrast of colors and textures.

St. Patrick High School, Chicago, Ill.
Edo J. Belli, Architect



Y.M.C.A. Swimming Pool, Oak Park, Ill.
Philip D. West, Architect

Lincoln Elementary School, Sterling, Ill.
Louis Kingscott & Associates, Architects

FTI STRUCTURAL

This seal is your assurance of highest quality Facing Tile.

FACING TILE INSTITUTE

1520 18th Street, N. W., Hudson 3-4200, Washington 6, D. C.

In the interest of better Facing Tile construction these companies have contributed to this advertisement. **CHARLESTON CLAY PRODUCTS CO.**, Charleston 22, W. Va. • **THE CLAYCRAFT CO.**, Columbus 16, Ohio • **MAPLETON CLAY PRODUCTS CO.**, Canton, Ohio • **METROPOLITAN BRICK, INC.**, Canton 2, Ohio • **McNEES-KITTANNING CO.**, Kittanning, Pa. • **NATCO CORPORATION**, Pittsburgh 22, Pa. • **STARK CERAMICS, INC.**, Canton 1, Ohio • **WEST VIRGINIA BRICK CO.**, Charleston 24, W. Va.

old

State Architect: **Anson Boyd**

Construction Supervisor: **Orvel B. Johnson**

In restoring a Wells-Fargo office in historic gold rush country, the California State Division of Architecture had a silicone-based water repellent applied to protect and preserve the original soft brick from further wear.

WATER REPELLENT:
DARACONE, BY DEWEY & ALMY CHEMICAL CO.

or
new

Architect: **Franz & Spence**

Contractor: **Spence Brothers**

To eliminate moisture penetration and minimize future maintenance costs, a water repellent treatment made with Dow Corning Silicones was specified for the brick and concrete exterior of the new East Side High School in Saginaw, Michigan.

WATER REPELLENT: DRI-KOTE, BY SAGINAW PAINT MFG. CO.

Specify water repellent treatments made with

Dow Corning Silicones

to keep masonry walls beautiful at low cost

On new construction or restorations, architects and contractors agree: a water repellent treatment based on Dow Corning Silicones makes above-grade masonry walls more weatherproof and preserves their original beauty. Completely invisible and non-plugging, silicones do not change the color or porosity of treated masonry. Water washes dirt off, not into, the surface. Staining, streaking, spalling and efflorescence are minimized or eliminated entirely. Treatment costs surprisingly little; remains effective for years.

Dow Corning silicone-based water repellents are now available from formulators and their distributors in every part of the country. Write Dept. 8805 for more information and a list of suppliers. Dow Corning Corporation, Midland, Michigan.

DOW CORNING
SILICONES

BOOKSTEIN RESIDENCE, Hopensit, L. I., N. Y.
A. DAVIS & SON, Architects

it's Woodco Windows

for the Beautiful point-of-view...

Whatever your point-of-view, WOODCO E-ZEE Loc Wood Awning Windows meet your most exacting standards. WOODCO assures the utmost in beauty, performance and efficiency . . . and when you measure these advantages in terms of ease-of-installation, fuel savings and homeowner satisfaction, you discover that WOODCO means the finest and most economical awning window ever made!

THERMOPANE® insulating Glass available to reduce condensation and cut fuel bills!

No-draft ventilation . . . even when it's raining!

Clean inside and outside surfaces . . . from inside!

Roter-type operator . . . Finger-tip control . . . so simple a child can do it!

Nothing to adjust • Nothing to get out of adjustment

CHECK THE WOODCO E-ZEE Loc PATENTED FEATURES:

- EASY TO LOCK
- SEQUENCE AIR CONTROL
- TOXIC-TREATED TO PREVENT DECAY
- EXTRA HEAVY SASH and FRAME
- DOUBLE VINYL WEATHERSTRIPPING (Pat. Pend.)
- WATER-REPELLENT TREATED
- COMPLETELY ASSEMBLED

. . . AND DON'T FORGET, MR. ARCHITECT

Every WOODCO E-ZEE Loc Window Unit is manufactured of Kiln Dried Ponderosa Pine, toxic treated to prevent decay and water repellent treated to reduce swelling and shrinking. Each unit is delivered to the building site completely assembled for quick and economical installation.

For your nearest Distributor or other information write to

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ROCKWELL of RANDOLPH, Inc., *Randolph, Wis., Mfrs. of WOODCO & other Millwork Products*

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KAWNEER

The Kawneer Metal Wall on the Equitable Life Assurance Building San Francisco, California, consists of stamped aluminum spandrel panels and stainless steel mullions and jambs combined with aluminum sash.

Assembly of shop prefabricated, weather resistant Kawneer window-spandrel units.

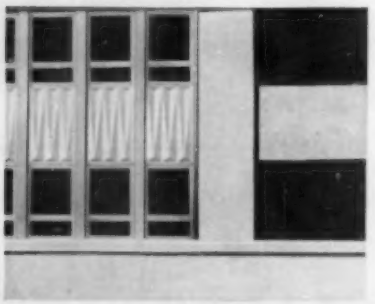


Illustration of wall area before and after installation of prefabricated Kawneer units.

Architects: W. D. Peugh (deceased)
Loubet & Glynn, A.I.A., San Francisco
Consultant Architect: Irwin Clavan, A.I.A., New York
General Contractor: Dinwiddie Construction Co.,
San Francisco

METAL WALL

Creative engineering experience assures true expression of your design

Kawneer has been working hand-in-hand with architects and builders for nearly 50 years in the development, engineering and production of architectural metals. The creative engineering ability (The "Kawneer Touch") coupled with years of production experience has made Kawneer the pioneer in aluminum *window and spandrel products*. Now, due to expanded production capacity and demand Kawneer has developed a *special* metal wall department. Production and engineering facilities have been organized to manufacture windows, spandrels, mullions and jambs in any metal and finish and to any design, economically and in any quantity desired, with special weather and waterproof features.

For personal assistance from Kawneer's metal wall engineers, just phone, wire or write.

Outstanding Kawneer Metal Wall Jobs

1931—St. Paul City Hall and Court House (photo above)

1933—Mellon Institute of Industrial Research

1933—Boulder Dam Power Houses and Towers

Kawneer
General Offices
NILES, MICHIGAN
ARCHITECTURAL PRODUCTS DIVISION

REYNOLDS

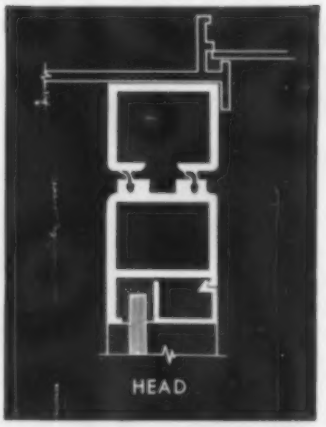
Pacific Mutual Life Insurance Company Building, San Francisco

Architects:
Loubet and Glynn, San Francisco, Calif.

General Contractor:
MacDonald, Young and Nelson, San Francisco, Calif.

Architectural Metal:
The Kawneer Company, Berkeley, Calif., and Niles, Mich.

Windows:
Reynolds Metals Company, Louisville, Kentucky

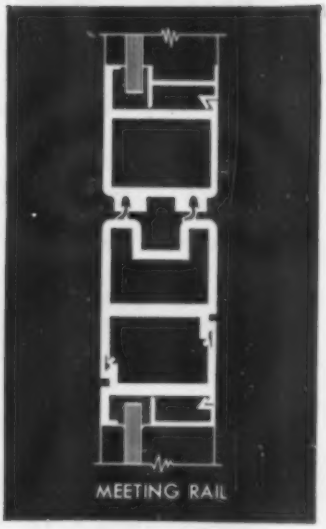


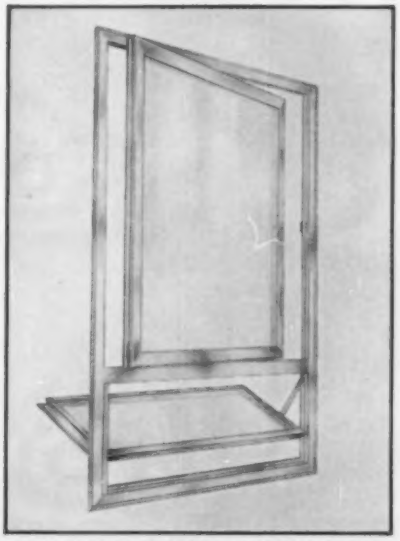
Aluminum Applications In This Building:

Copings • Door Frame • Vertical and Horizontal Mullion Covers Door and Window Jamb Covers • Column Covers • Facia • Stools and Sills

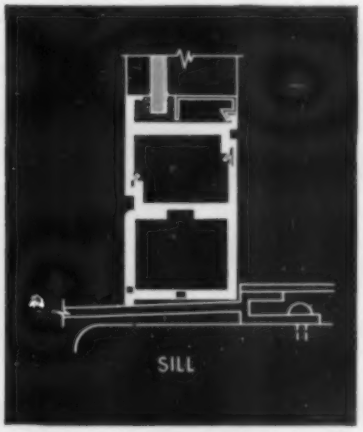
REYNOLDS ALUMINUM SERVICE TO ARCHITECTS

Reynolds Architect Service Representatives offer specialized assistance on aluminum design problems, on applications of standard aluminum mill products, and on the use of commercially fabricated aluminum building products. They can help to coordinate varied aluminum requirements for procurement efficiency and economy. Please address inquiries to . . . Architect Service, **Reynolds Metals Company,** Louisville 1, Kentucky.





REYNOLDS 100H SERIES VERTICALLY PIVOTED WINDOW used in Pacific Mutual Building. Provides minimum air infiltration, positive locking. Revolves easily for washing from the inside. All welded frame construction. Self-draining.



See "MR. PEEPERS," starring Wally Cox, Sundays, NBC-TV Network

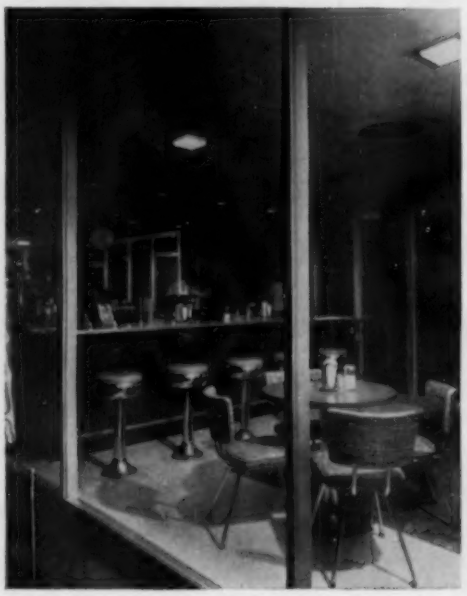
ALUMINUM

In the new Texas Children's Hospital . . .

Pittsburgh Glass was utilized for maximum visual freedom

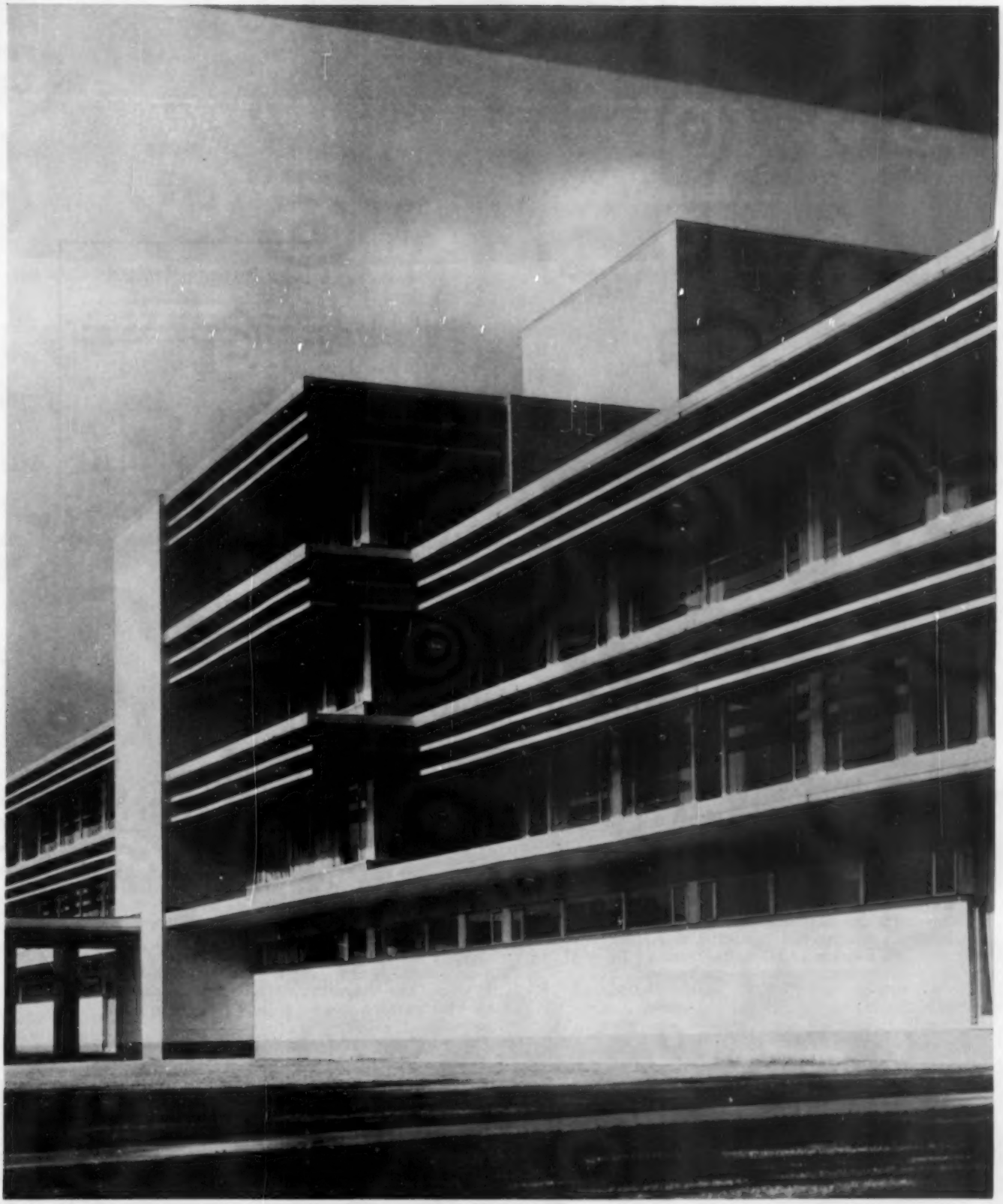
IN THE MAIN LOBBY, large areas of Pittsburgh Plate Glass help to achieve a cheerful, attractive atmosphere. The two doors and two sidelights, which make up the main entrance, are Herculite® Tempered Plate Glass — a glass that is noteworthy for its characteristics of sturdiness, strength, transparency, and endurance. Herculite has approximately four times the strength of normal plate glass of the same thickness.

LARGE PANELS of Pittsburgh Plate Glass are used to enclose the snack bar and gift shop located near the lobby on the ground floor. All the mirrors in this hospital building are made from Pittsburgh Polished Plate Glass.



THIS MODERN HOSPITAL for child care reflects in its physical arrangement the best in functional design. A simple rectangle in shape, five stories high, this building utilizes broad expanses of Pittsburgh Glass for added beauty and practicality. The use of Pittsburgh's Solex® Heat-Absorbing, Glare-Reducing Glass on the third and fourth floors of all patients' rooms is a distinct contribution to their comfort. Solex keeps rooms cooler, protects them from the intense glare from direct sunlight. Architect: Milton Foy Martin, A.I.A., Houston, Texas.

Design it better with **Pittsburgh Glass**

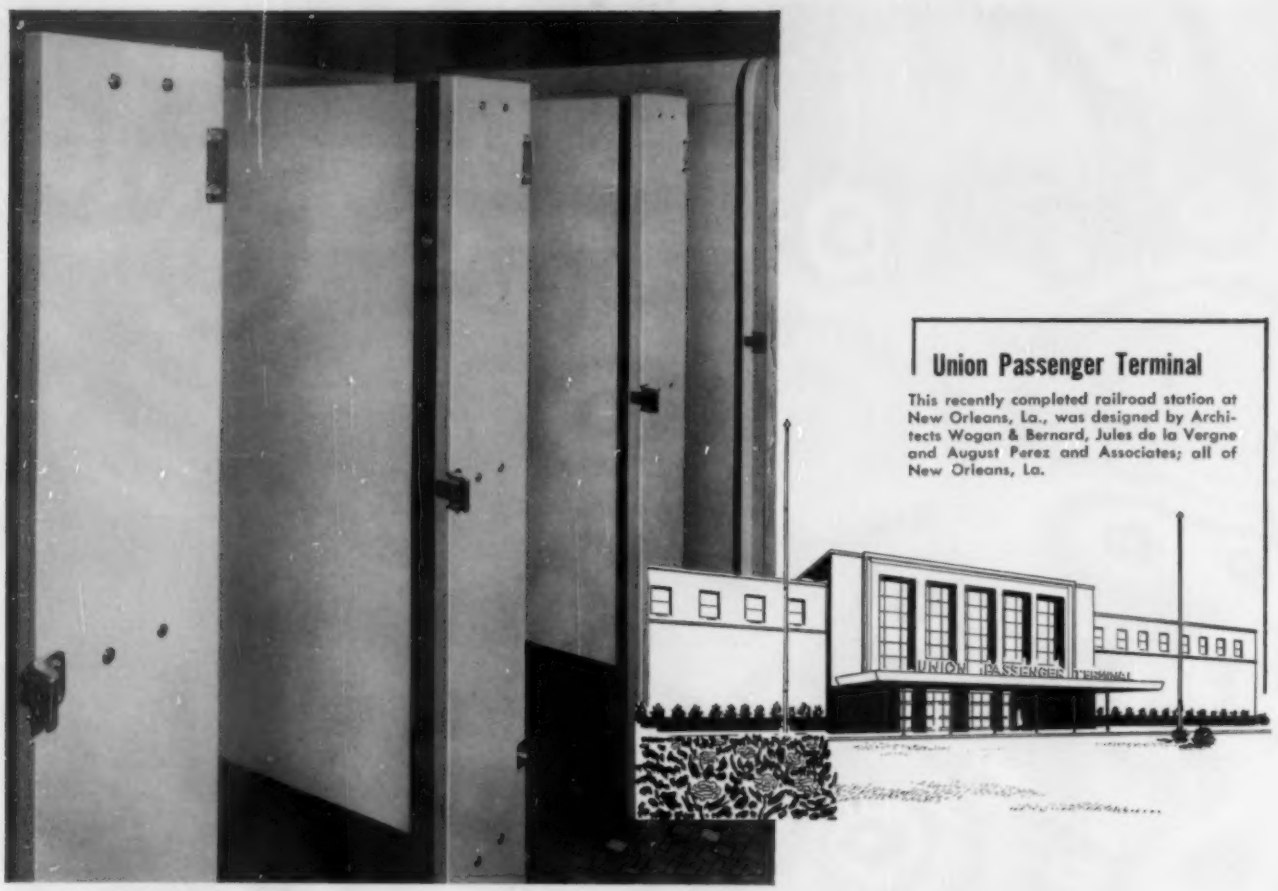


Your Sweet's Architectural File contains detailed information on all Pittsburgh Plate Glass Company products . . . Sections 6a, 15d, 20, 12e, 15a.

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS · FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED



Union Passenger Terminal

This recently completed railroad station at New Orleans, La., was designed by Architects Wogan & Bernard, Jules de la Vergne and August Perez and Associates; all of New Orleans, La.

Washrooms of another notable building finished in Carrara Glass

• Carrara® Structural Glass has many outstanding, distinctive qualities which make it first choice with important architects who are called upon to design America's leading buildings. This is especially true when the selection of a finishing material for washroom walls, stiles and partitions is involved.

Carrara Structural Glass is all pure glass with a smooth, even surface that is highly impervious to attack by steam, water, acids and cleaning compounds. Its gleaming finish, mechanically ground and polished to a high degree of lustre, will retain its beauty indefinitely, through many years of service, countless cleanings. It cannot check, craze, stain or fade; it will not absorb odors.

Carrara Structural Glass is easy to clean and keep clean. An occasional wiping with a damp cloth keeps it fresh and sparkling. And since Carrara is made in large sections, there are fewer joint crevices to catch dust and dirt.

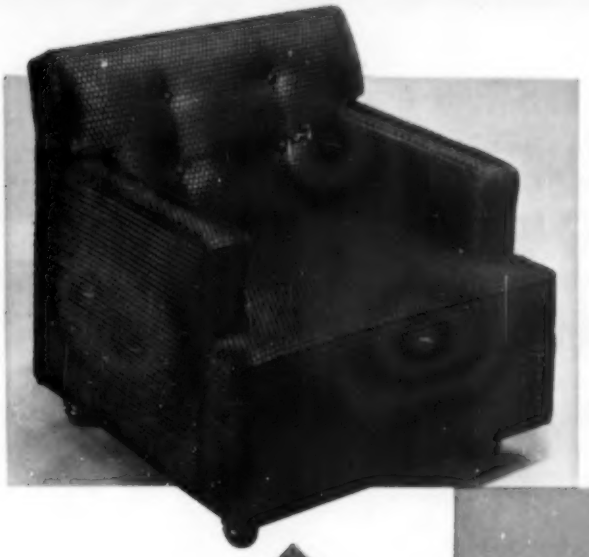
For more information about this versatile material —its unique beauty, its wide application possibilities, and its ten glowing colors — write Pittsburgh Plate Glass Company, Dept. 5226, 632 Fort Duquesne Boulevard, Pittsburgh 22, Pennsylvania.

Carrara ... the quality structural glass

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS · FIBER GLASS

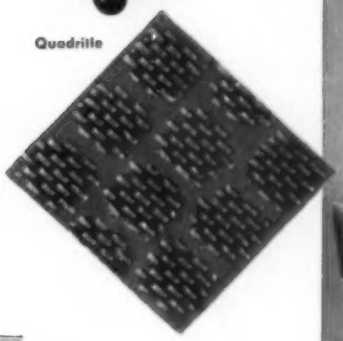
PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED



William Pahlmann, A.I.D., uses the Quadrille pattern in black on this club chair.

Mildred Irby, A.I.D., uses the Sequin pattern in green on this modern chair.



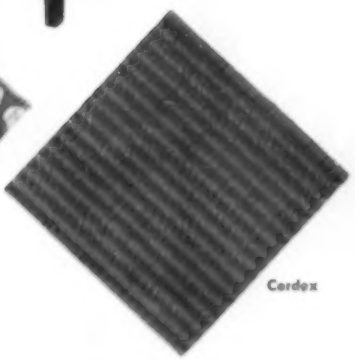
Quadrille

designed for carefree modern living

Breathable U.S. Naugahyde*

the finest in vinyl upholstery

Sequin



Cordex

Welcomed by leading decorators, Breathable U. S. Naugahyde is the first fabric to truly combine beauty with durability for modern living. This entirely new concept of upholstery fabrics brings new distinction to every style and period of furniture, as illustrated here. Breathable U. S. Naugahyde combines the soft luxury of woven fabric with the soil-resistant durability of vinyl.

Look for Breathable U. S. Naugahyde on fine new furniture or ask your supplier.

C. Eugene Stephenson, A.I.D., uses the Sequin pattern in peridot on this French chair.

*trutent applied for

Oriental

Breathable U. S. Naugahyde comes in a wide range of beautiful colors; in the four distinctive patterns shown in sample swatches.

John B. Wisner, A.I.D., uses the Oriental pattern in clove on this chair and ottoman.

US RUBBER

UNITED STATES RUBBER COMPANY • **Coated Fabrics Department, Mishawaka, Indiana**

BARBER COLMAN

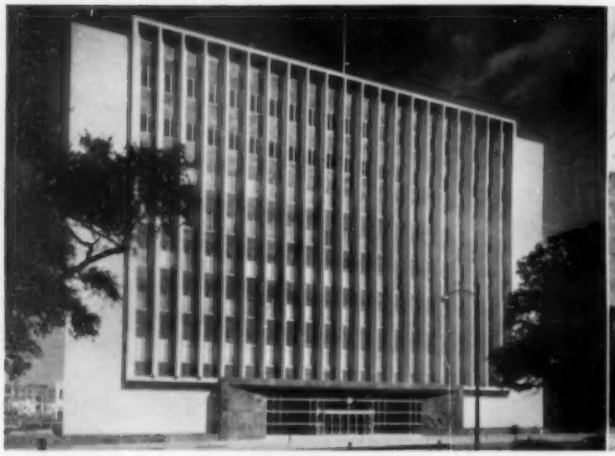
LINE-O-FLO ENGINEERED

Air Distribution

. . . accents architectural design of court house!

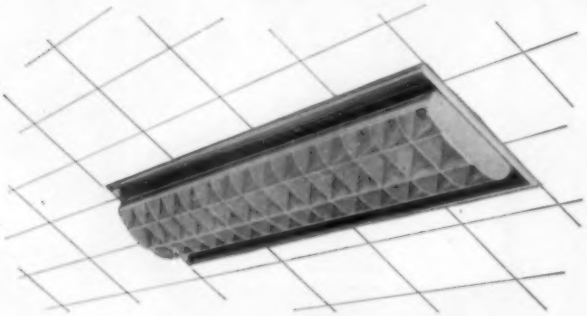
County fathers in Houston, Texas, took no chances when they were approving a $1,500,000 conditioned air system for the new $11,000,000 Harris County Court House. Barber-Colman equipment was specified throughout this modern structure, assuring finest possible end results from the sizable investment in conditioning apparatus. Air is distributed efficiently, quietly, unobtrusively, for heating, cooling, and ventilating from the Line-O-Flo and Venturi-Flo Ceiling Diffusers, and the Uni-Flo Sidewall Diffusers and Return Grilles. Not only are the results above par, but the air distribution units are easier to install, harmonize beautifully with the contemporary design, and last a lifetime with a minimum of service.

Architects: FINGER & RUSTAY. *Mechanical Engineer:* I. A. NAMAN. *General Contractor:* MANHATTAN CONSTRUCTION CO. *Mechanical Contractor:* CHARLES G. HEYNE AND COMPANY.

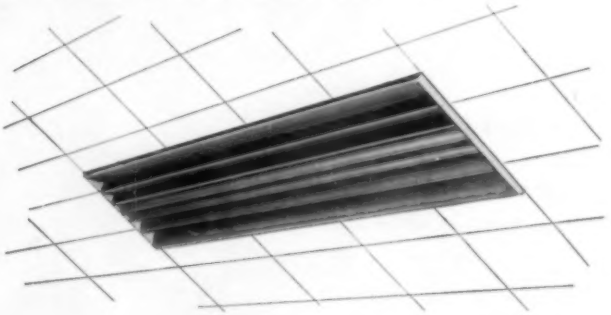


Eight-story court house, except for the jail area, is completely air conditioned. Four primary systems, located on the roof, heat, cool, ventilate, and control humidity as outside conditions require.

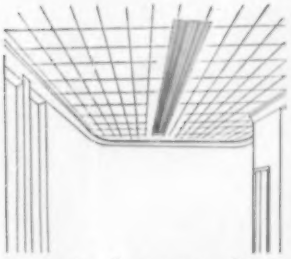
Line-O-Flo Ceiling Diffusers in lobby and court room areas quickly equalize temperature differential between supply and room air, preventing stratification and eliminating drafts. Combine readily with light fixtures.



Model LL Line-O-Flo is designed to receive a Day-Brite light unit, which is isolated from the air stream. Flange arrangements permit individual or continuous mounting.



Model LS Line-O-Flo, as used in Harris County Court House, provides positive control of air volume, plus uniform distribution over entire length. Individual or continuous mounting.



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Dept. Q, 1131 Rock Street, ROCKFORD, ILLINOIS, U. S. A.

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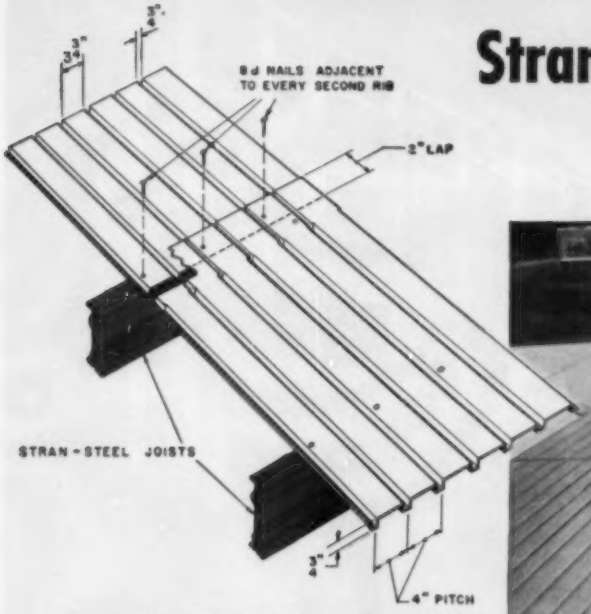
for use with Stran-Steel Framing



Woodland Acres Shopping Center in Green's Bayou, Texas, utilizes 26-ga. Stran-Steel galvanized roof deck nailed to 9" Stran-Steel joists, on 24" centers. Built-up roof was applied over ½" fiber glass insulation. Architects: DUNAWAY AND JONES, Houston. Distributor: BUIE BLDG. MATERIAL CO., Houston.

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LIGHTWEIGHT but STRONG: Dead load savings up to 10 lbs. Total weight of this dry system, including 1" of insulation board, is less than 3 lbs. per sq. ft. Great strength-to-weight ratio assures maximum economy in materials.

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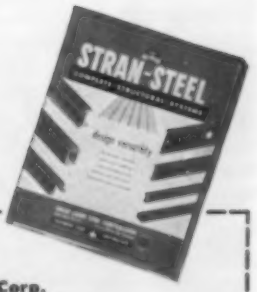
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Right: Spandrels to north, south, east and west elevations are deep mottled green Architectural Terra Cotta 2" thick.

Below: 2" facing for auditorium lobby and stair in units 24" x 24" is Architectural Terra Cotta in a lustrous medium green.

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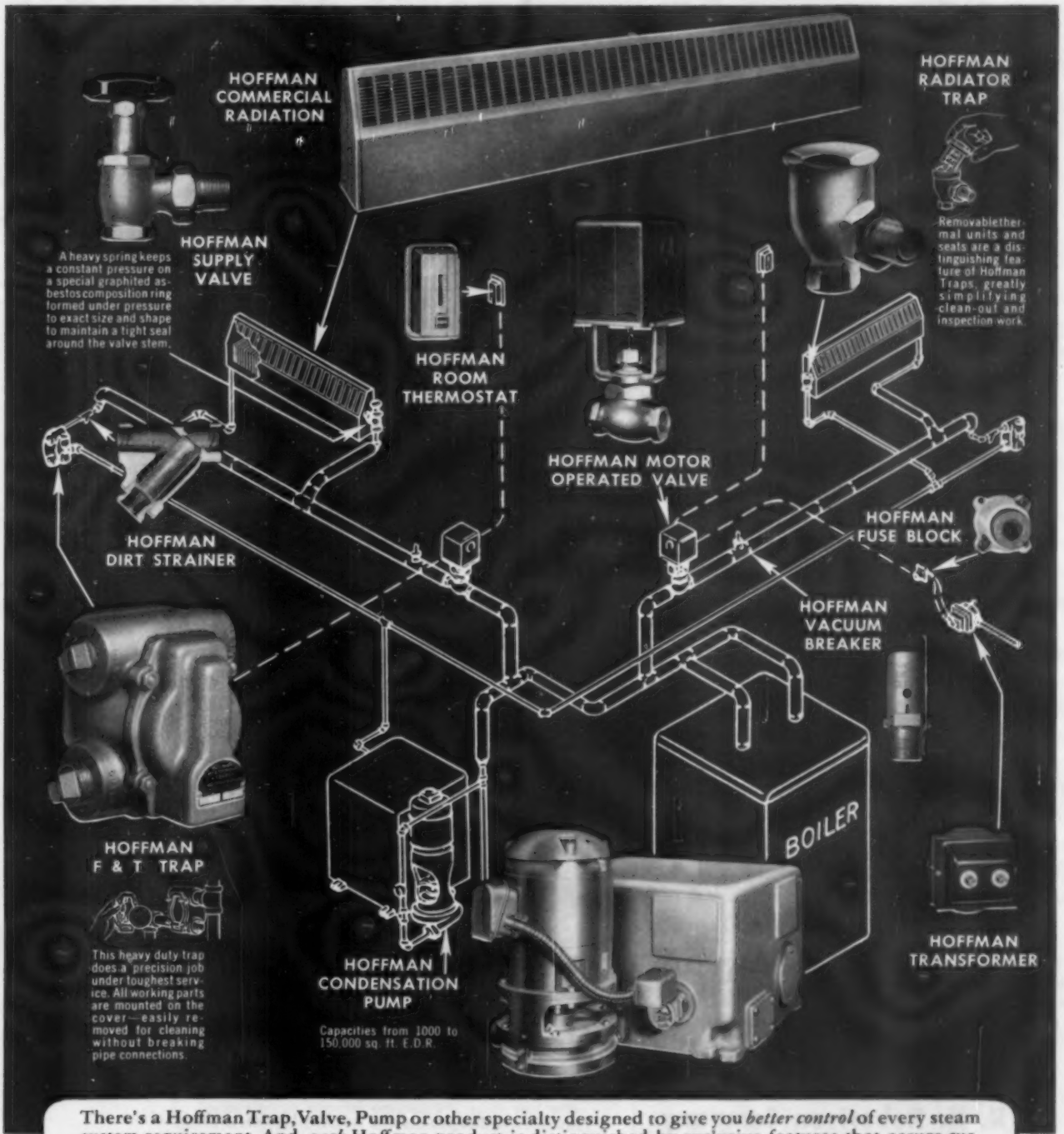
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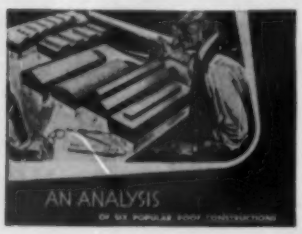
1.
Design and Cost Factors

This book compares Q-Floor with other types. Based upon a typical multi-story building, the study is replete with charts and cost analyses of all structural components.

2.
How to Fireproof Q-Floor and Structural Steel

This is a description of fireproofing methods when Q-Floor is used with structural steel framing. It contains detailed drawings, typical code requirements and fire resistive ratings.



3.
An Analysis of Industrial Roof Construction

All the better-known roof types (flat, monitor, bow-string, double-pitch, high-low bay, saw tooth) are compared on the basis of weight of structural steel, volume, roofing, sash area, flashing, ventilation and daylighting.

4.
Cantilevered Roofs and Canopies

This is information on the use of long-span Q-Deck on modern buildings that call for covered walkways or overhanging roofs for weather protection. Loading conditions and structural details shown.

5.
Concrete Fill on Q-Floor

This booklet gives recommended practices for concrete fill over Q-Floor. You'll find specifications for formulation, placement and curing, plus treatises on the nature and reactions of concrete.

6.
Acoustical Data on Q-Deck

Though the fluted undersurface of Q-Deck provides some acoustical value, demand for more has led Robertson engineers to devise a new low-cost treatment. Test data and details are included.

Robertson Products

for modern buildings

H. H. Robertson Company
2405 Farmers Bank Building, Pittsburgh 22, Pa.

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(Vitreous Porcelain on Steel)

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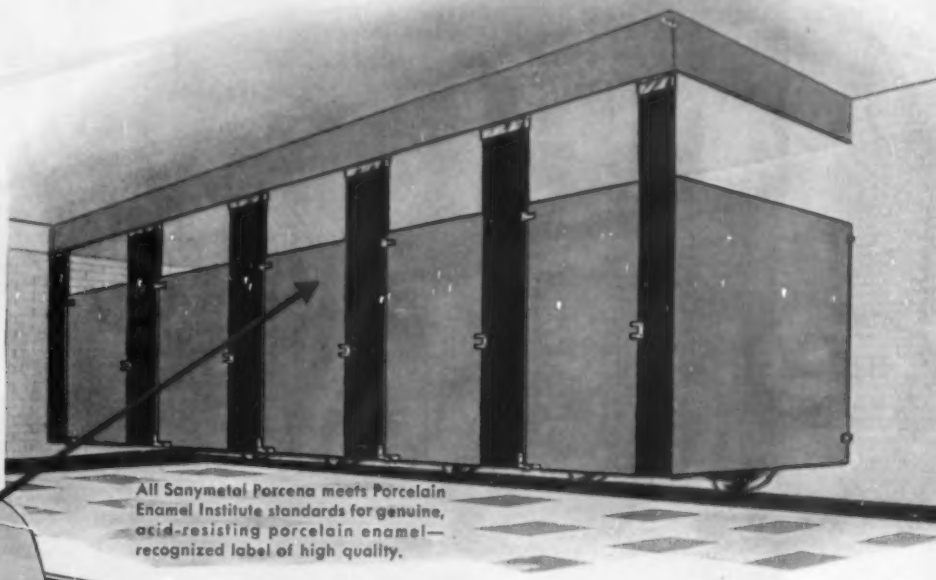


All Sanymetal Porcena meets Porcelain Enamel Institute standards for genuine, acid-resisting porcelain enamel—recognized label of high quality.

Genuine
PORCELAIN ENAMEL
"THE LIFETIME FINISH"
THIS MATERIAL IS
ACID RESISTING
PORCELAIN ENAMEL
• Will not rust, burn, or discolor
• Does not harbor odors or germs
• As easy to clean as a china dish
• Is not harmed by household acids, fruit juices or alcohol
• Hardest household work surface
• Color and beauty will not fade
GUARANTEED by the manufacturer to conform with the "General Specification for Porcelain Enamel Surfaces-Acid Resistant Type (PEI: S-102)" of the Porcelain Enamel Institute, Washington, D. C.
TO CLEAN: USE DAMP CLOTH, SOAP AND WATER

MINIMUM OF MAINTENANCE—The sanitary flush surfaces of PORCENA are economically maintained. Pencil or lipstick marks are easily removed. Porcena resists cleaning caustics, uric acids, and withstands scratches and shocks, still retaining its original luster.

IT IS NOT necessary to gamble on getting long life and low maintenance cost in toilet compartments you specify.

PORCENA, Sanymetal's vitreous porcelain on steel, has proved to have the lowest maintenance cost. It has been in actual use for more than 19 years, with over 2,000 actual installations.* Today the porcelain surfaces of even the oldest are as bright as new after being sponged with soap and water. Not one has faded, failed, required repair, or replacement, due to lack of durability or normal use of the material. Porcena has the hardness of glass and the natural strength of steel—it never requires refinishing.

There is nothing "experimental" or "developmental" about Sanymetal Porcena. Sanymetal originated *porcelain enamel* toilet compartments, and thoroughly understands how to make them uniform in durability, color and quality. Porcena is a proven product, one of many Sanymetal features. Ask your Sanymetal Representative about other features you get in Sanymetal Compartments—all of them at no extra cost.

**See Sweet's, or send for Catalog 92 describing all Sanymetal Compartments. If you wish, we will mail other advertisements in this series about quality construction features, and a list of PORCENA installations in your area.*

This long-life feature is obtainable on all **SANYMETAL** *Flush Type Compartments.*

THE
Sanymetal®
PRODUCTS COMPANY, INC.
1683 URBANA ROAD, CLEVELAND 12, OHIO

FOR THE MODERN BATHROOM...

HALL-MACK®

ONE OF A SERIES ON

HALL-MACK
CREATIONS IN CHROME

Here's a bright new idea in bathroom convenience...a space-saving utility bar that actually telescopes into the wall when not in use! For extra drying space... for nylons, lingerie or guest towels...this modern bathroom accessory adds a full 14" bar with a minimum of wall space! Its clean, modern appearance fits into any bathroom, adds to its beauty and usefulness.

It's another of Hall-Mack's original ideas—*extra touches* that help you design distinctive bathrooms! Be sure to specify Hall-Mack—and Hall-Mack quality—always!

HALL-MACK COMPANY

1380 West Washington Boulevard, Los Angeles 7, California
7455 Exchange Avenue, Chicago 49, Illinois
1000 Main Avenue, Clifton, New Jersey

SOLD BY LEADING PLUMBING, TILE AND HARDWARE DEALERS EVERYWHERE

Oak Plywood Paneling—The Cenacle Convent, Boston, Mass.

time honored yet timeless...

Versatile Birch Plywood forms interesting block panels on walls. Maple Plywood is readily curved to make these attractive seats in Washington School—W. F. McCaughey & Associates, Park Ridge, Illinois—Architects

hpi HARDWOOD PLYWOOD

Schools and churches pose this architectural problem...once built, they must function with minimum architectural or decorative changes for years. The timeless loveliness of Hardwood Plywood wears well—in more ways than one:

- Grain in panels can be matched without risking the repetitious monotony of printed photographic substitutes.
- Unlike paper-thin surfaces, Hardwood Plywood offers a *depth* of beauty which means that scratches and mars are easily repaired —that maintenance is held to a minimum.
- Hardwood Plywood has superior acoustic qualities—an important consideration in churches and schools.
- Hardwood Plywood is a practical building material. It's reasonable in cost, easy to work with, easy to install, and available everywhere.

ACHIEVE DISTINCTIVE, INDIVIDUALISTIC EFFECTS

Where beauty and function are equally important goals, Hardwood Plywood fulfills the situation as nothing else can. The natural beauty combined with the unparalleled strength, stability and durability makes it a truly outstanding design medium. It's available in lovely birch, gum, mahogany, maple, oak, walnut and other popular species.

THIS FREE LITERATURE SHOULD BE IN YOUR FILE

HARDWOOD PLYWOOD INSTITUTE, DEPT. 15E
600 S. Michigan Avenue • Chicago 5, Illinois

Gentlemen, please send me the following literature:

☐ "A Treasury of Hardwood Plywood." A color booklet showing the selection and use of Hardwood Plywood.

☐ Technical information on the strength properties of various species of Hardwood Plywood.

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

CERTIFIED AMERICAN QUALITY • HARDWOOD PLYWOOD INSTITUTE • hpi

HARDWOOD PLYWOOD
Genuine Wood, Fabricated in America

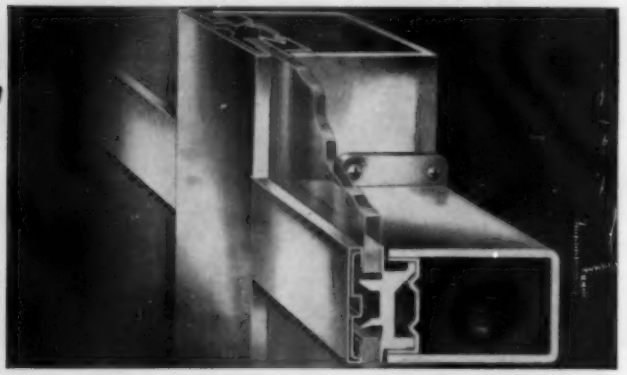
The HPI seal identifies American mills operating under a rigid 5-point quality control program. It's your assurance of getting consistent quality, uniform grading from coast to coast...the backing of a national ad campaign that's building consumer acceptance everywhere.

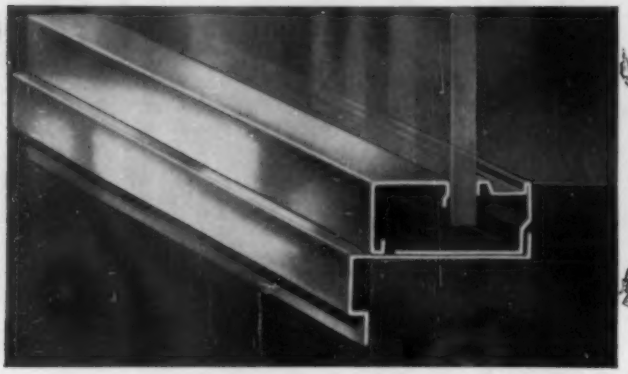
HARDWOOD PLYWOOD INSTITUTE
600 South Michigan Avenue • Chicago 5, Illinois

Consider these **4 Essentials** *in Your Store Front Plans*

STYLE - Architectural individuality will set the store apart from its competitors. Window settings and entrances of distinctive design help to provide immediate store identification. You can accomplish this economically with complete Brasco Construction. The variety of special effects possible with our versatile stock assemblies eliminates any necessity for special fabrication.

STRENGTH-Today's larger glass areas require sound construction, designed, engineered and fabricated to provide ample security under all conditions of weather and traffic. This calls for Brasco's heavy duty, steel-reinforced division bars. Glass holding mechanisms for sash rails are made of stainless steel to assure greater strength and resistance to corrosion.





SAFETY- Brasco's deep, firm, time-tested grip on the glass is your best protection against breakage. Even the largest lights are held securely, without strain, to absorb shock, vibration and wind pressure. Special lead-covered aluminum setting blocks cushion the glass safely and prevent shifting. They will not corrode or deteriorate.

SALES - *Sell*evision* design is an important factor in attracting both new and old customers. Brasco's low sash exposes more glass to enlarge the view of the inviting interior from the street. With smart lines and pleasing profiles, Brasco Store Fronts and Entrances add eye-catching appeal that brings buyers IN. *©

YOU'LL GET BETTER RESULTS WITH BRASCO

For Construction Details Please Write Dept. P 505

STORE FRONTS
Brasco
ENTRANCES

MANUFACTURING CO. HARVEY, ILLINOIS

Metal Store Front Specialists for more than 40 Years

Another feature to please your clients!

Ceramo is protected by a glazed ceramic surface, similar to the enduring finish given fine china! And, like china, Ceramo resists stains, doesn't fade . . . never needs paint or preservatives . . . is 100% washable! Thus Ceramo costs your clients less in the long run than ordinary sidings that can't match its rich, deep-tone and pastel colors, or its whiter-than-white. And remember—Ceramo colors are *permanent.* They're baked right into the ceramic surface!

For homes that look newer, smarter . . . are worth more at resale time, specify quality Carey Ceramo! It's ideal for new homes and remodeling. Send today for your free copy of "Carey Dependable Products"—picturing Ceramo and other fine Carey products in *full color!* ADDRESS DEPT. PA-5. Or, see A.I.A. File No. 12.

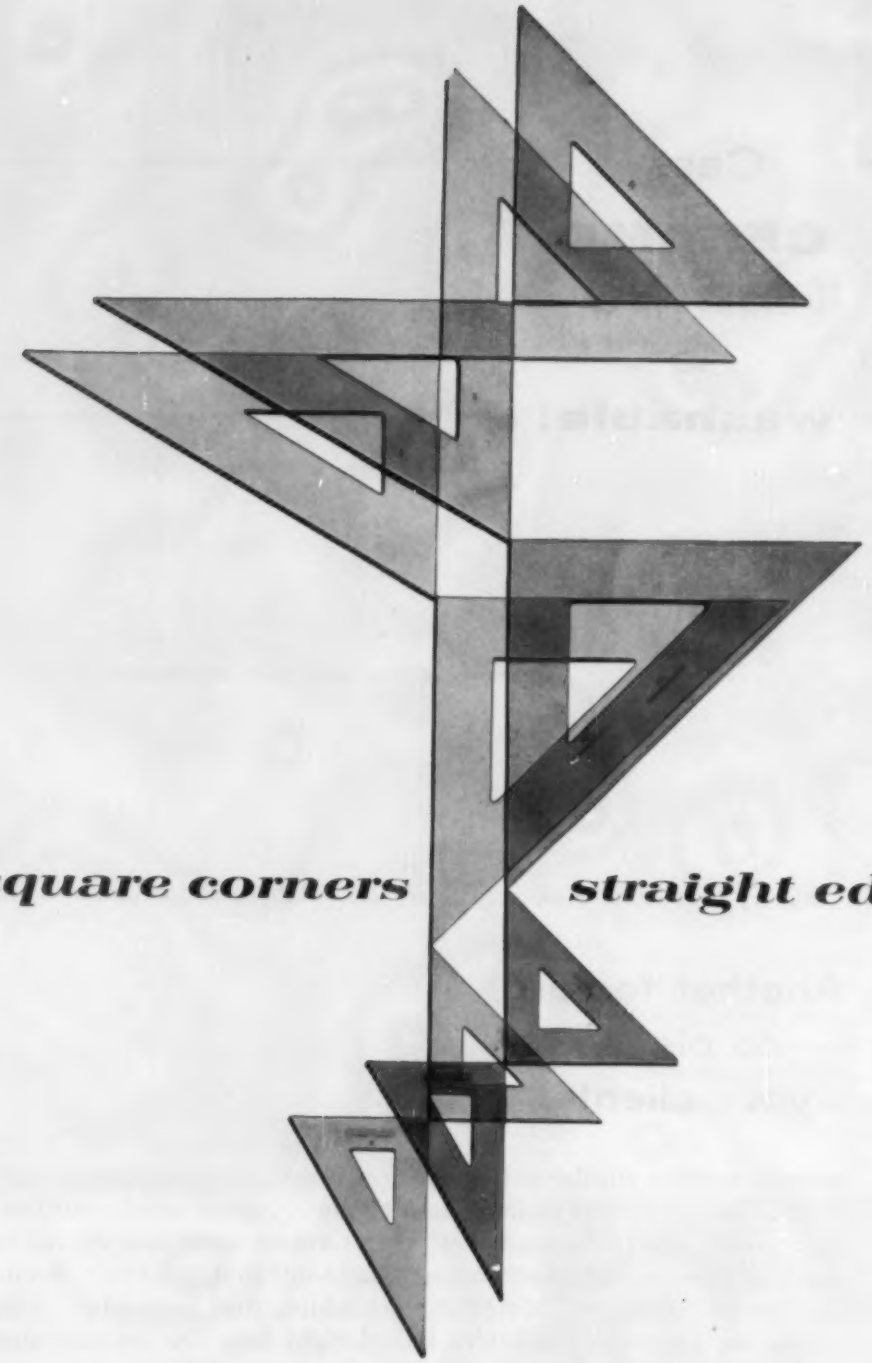
Harmonizing Deep-Tone and Pastel Colors for every architectural treatment!

Sherwood Green
Salem Red
Colonial Yellow
Congo Brown
Sage Green
Granite Gray
. . . and brilliant Ceramo White!

Carey COLORED CERAMO SIDING

The Philip Carey Mfg. Company
Lockland, Cincinnati 15, Ohio
In Canada: The Philip Carey Co., Ltd., Montreal 3, P. Q.

Better products for better building since 1873



square corners straight edges

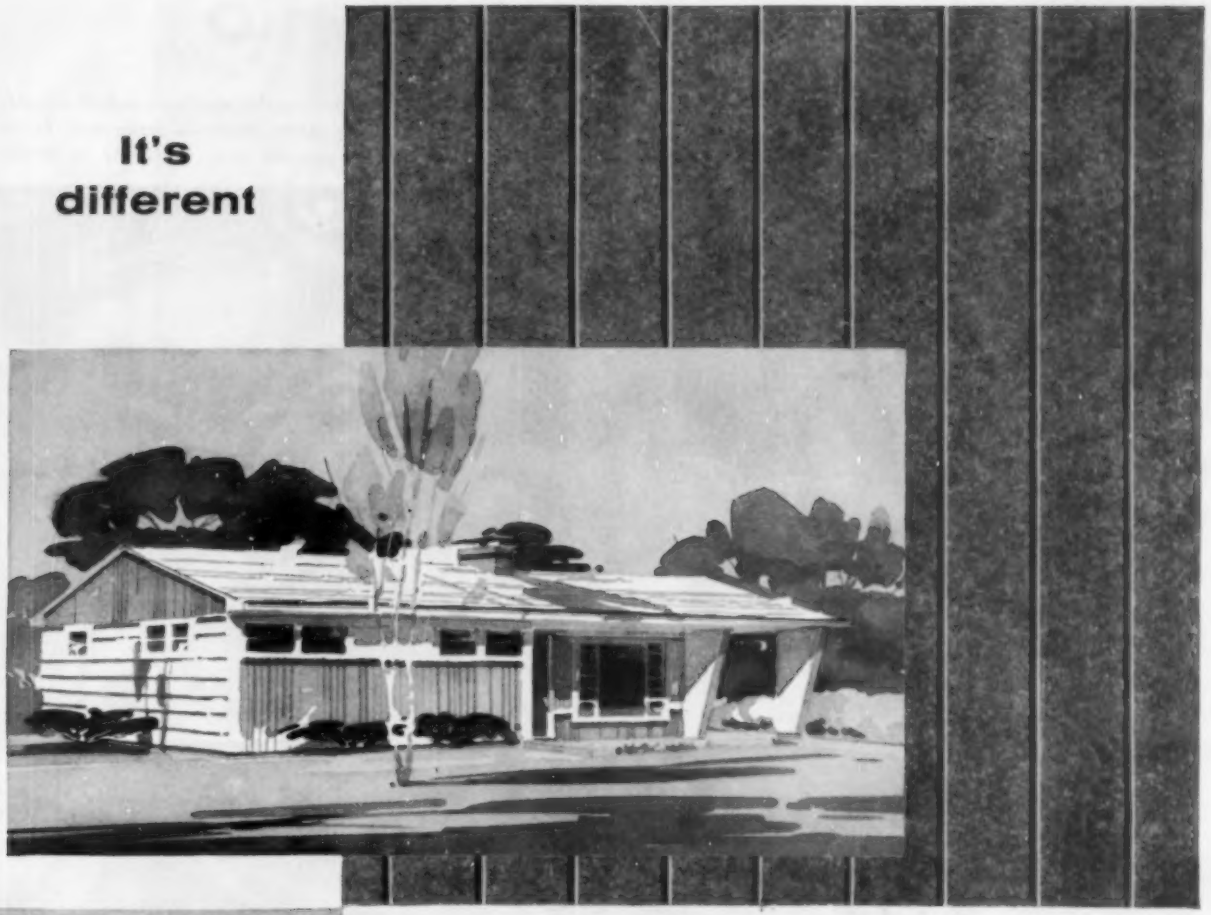
High-precision manufacturing equipment and constant laboratory checking enable us to make sure that every resilient tile we produce is straight-edged and square when it leaves the factory; efficient modern packaging keeps it that way until ready for installation. These precision-cut tiles fit together smoothly and easily for low installation costs, and minimize wastage. Uniform thickness, accuracy of cutting, trueness and clarity of color, surface smoothness, ease of maintenance and built-in durability—all of these qualities combine to make this line the world's most popular line of resilient tile floorings.

KENTILE, INC.

America's largest manufacturer of resilient floor tiles

KENTILE: Asphalt Tile . . . Carnival . . . Corktone • KENCORK: Cork Tile for Floors and Walls • KENRUBBER: Rubber Tile • KENFLEX: Vinyl Asbestos Tile . . . Carnival • KENFLOR: Vinyl Tile . . . also available by the yard • SPECIAL KENTILE: Grease-proof Asphalt Tile • THEMETILE, KENSERTS: Decorative Inserts • KENCOVE: Vinyl Wall Base • KENBASE: Wall Base

It's different



Ideal for the game room, recreation room, den, study or modern living room. Panelgroove goes up quickly, takes and holds any surface finish, resists all kinds of bumps, scrapes and surface hazards. Use Panelgroove for interesting, serviceable walls in public rooms, too.

When Individuality Counts Use

NEW MASONITE PANELGROOVE

Different—distinctive—and desirable! Offers you a vertical accent for exteriors in homes of all types, for garages, shops, and many another structure. Creates a refreshing contrast to other design treatments. Makes good-looking gable ends—quickly! Perfect for use between and around windows, on short runs, and in featured areas.

Masonite Panelgroove needs no joint treatment...edges are shiplapped to create a continuous pattern. Square-cut grooves are $\frac{3}{8}$" wide and 4" on centers. Panels are 4' wide, $\frac{5}{16}$" thick and up to 16' long.

When you specify Panelgroove, you will be assuring your client all the weather-defying advantages of Masonite Tempered Presdwood®—plus a continuous high-styled design with great popular appeal. Sold by lumber dealers. For complete information write Masonite Corporation, Dept. PA-5, Box 777, Chicago 90, Illinois.

Look For This Man He Makes The Difference

MASONITE PANELGROOVE

TEMPERED PRODUCT OF MASONITE® CORPORATION

Not immediately available west of the Rockies

AN INVISIBLE RAINCOAT now protects this warehouse and office building. The above-grade masonry water repellents made with *Linde* Silicones apply easily by low-pressure spray or (inset) by brush.

SO EASY—yet it does so much more!

Just a low-pressure spray application—or simple flushing on with a brush.

That's all it takes to keep out water for many years to come—when you apply above-grade masonry water repellent made with *Linde* Silicones.

But it does so much more!

OUTSIDE

As soon as it dries it is colorless. It leaves no shine. It stops rain from penetrating even when driven on 100-mile-an-hour winds. Since it puts a water-shedding surface on masonry, concrete and brick, dirt washes right down to the ground.

It lines yet it does not seal up the pores, so moisture entrapped before treatment can evaporate. Thus spalling and cracking due to freezing are halted. Efflorescence, too, is prevented.

INSIDE

The benefits really multiply. Plaster, woodwork, paint and wallpaper stay dry. Peeling and staining due to moisture penetration are banished. Decorating, maintenance and repair costs drop.

See for yourself how easy and inexpensive it is to put a lasting, invisible raincoat on homes, institutions, schools, factories, churches, office buildings. Write today for full information and a list of representative suppliers. Address Dept. B-5.

FOR SILICONES LOOK TO

Linde AIR PRODUCTS COMPANY | A DIVISION OF UNION CARBIDE AND CARBON CORPORATION

General Offices: 30 East 42nd Street, New York 17, N. Y.

IN CANADA: Dominion Oxygen Company, Division of Union Carbide Canada Limited

The term "Linde" is a registered trade-mark of Union Carbide and Carbon Corporation

THERE ARE ALWAYS NEW USES FOR WEST COAST LUMBER

This striking "inside-outside" truss is one of the many interesting new uses of wood for home construction. Intended primarily to give a feeling of greater height in the living room, it also helps create a spacious, informal atmosphere. Outside, this truss application makes possible a post-free overhang for a protected patio and children's play area.

For freedom of expression, specify wood . . . the economical, ever-modern building material. For dependable lumber, specify the West Coast species . . . Douglas Fir, West Coast Hemlock, Western Red Cedar and Sitka Spruce.

WALTER GORDON
Architect, AIA
Graduated from Princeton and later took his M.F.A. there. Also studied at University of Paris, and at Yale University graduate school. Has designed numerous homes, many of which have been featured in national magazines.

WEST COAST LUMBER

Douglas Fir • West Coast Hemlock
Western Red Cedar • Sitka Spruce

Send for folder describing free literature available for your reference files. West Coast Lumbermen's Assn., 1410 S. W. Morrison St., Portland 5, Ore.

Why

BRIXMENT IS WATERPROOFED

Brixment is waterproofed during manufacture, with the most effective air-entraining, water-repelling agent known.

The fact that Brixment is waterproofed can be demonstrated by making the crater test shown in Figure 1. Brixment's *effectiveness* in preventing the passage of water through the mortar can be demonstrated by making the test shown in Figure 2.

* * * * * *

Waterproofed Brixment gives you three practical benefits which are not available in ordinary cement-and-lime mortars:

1 HELPS PREVENT LEAKY WALLS

Even under pressure, water cannot readily pass through Brixment mortar. Therefore, if the face brick are back-plastered with Brixment mortar, a barrier is set up against the passage of water to the inside of the wall.

2 GREATLY INCREASES DURABILITY

Water cannot readily penetrate Brixment mortar. This prevents the mortar from becoming saturated — therefore helps protect it from the destructive action of freezing and thawing to which it is subjected many times each winter.

3 HELPS PREVENT EFFLORESCENCE

Waterproofed Brixment mortar checks the passage of water and keeps it from percolating down through the wall, dissolving salts which may be in the masonry materials, and carrying them to the surface.

Louisville Cement Co., Louisville 2, Ky.

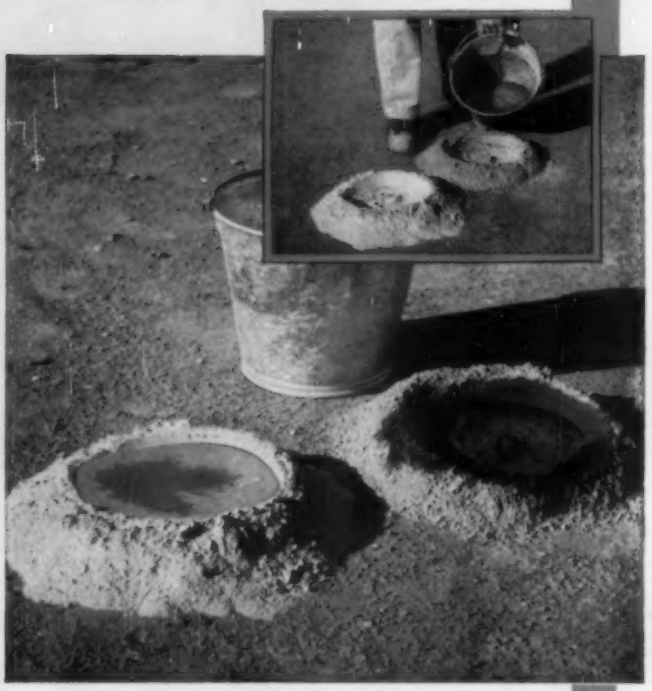


FIGURE 1

Pour out a pile of Brixment and a pile of ordinary cement and lime. Make a crater in the top of each pile. Fill each crater with water. Note how the cement-and-lime mixture absorbs the water immediately. Note how the waterproofed Brixment *holds* it.

FIGURE 2

Prepare two slabs of mortar, one with Brixment and one with ordinary lime-and-cement mortar. After mortars have hardened, seal a lamp chimney to each of the mortar slabs, using wax or candle grease, and fill with water.

After 24 hours, note how much water has gone into and through the non-waterproofed mortar, and how little water has gone into or through the Brixment mortar.

the
news
is
BLUE

CUPPLES

Cupples

CUPPLES PRODUCTS CORPORATION

There's a RUSCO window for every plan you make

Complete finish-painted ready-to-install units

RUSCO

HOT-DIPPED GALVANIZED

STEEL PRIME WINDOWS

From modest dwellings to big, rambling Ranch homes—for small buildings or multi-story skyscrapers—there's a Rusco hot-dipped, tubular, galvanized steel Prime Window made to fit *your plans!*

These highly functional ready-to-install Prime Windows have many exclusive advantages. Much costly, time-consuming, on-the-job work is eliminated when you specify Rusco! No glazing—no painting—no fitting or later adjusting—no sash cords, weights or balances. This *complete* window is a finished unit the minute it goes into a building!

Select from a full line of Horizontal Slides—Vertical Slides and Fulvue Vertical Slide types—in all standard sizes and shapes.

THE NEW RUSCO SCREEN AND STORM DOOR COMBINATION
(Model No. 55 RSD)

Made of hot-dipped galvanized steel—this new low-cost door has a full-length Fiberglas screen, removable insulating sash optional, attached hardware, patented Thermolok closure strips, vinyl sill sweep, kick-plate and adjustable closer. Attractive, protective grille and house number or initial available at extra cost.

"Hello there! I'm Sally Steele from the Rusco Service Department. We have your free copies of literature, describing these fine Rusco products, ready to mail as soon as you write to me at the address below."

Always one step ahead of the weather with RUSCO

THE F. C. RUSSELL COMPANY

DEPT. 7-PA55, CLEVELAND 1, OHIO • IN CANADA: TORONTO 13, ONT.

World's largest manufacturer of windows, doors and home comfortizing products.

LOOK WHAT RUSCO PRIME WINDOWS OFFER YOU!

Made of Hot-Dipped Galvanized Steel for strength, long life and minimum maintenance. Zinc-treated, Bonderized and finished with baked outdoor-type enamel for protection against weathering.

Available with Insulating Sash—and Fiberglas screen, as an integral part of the unit. Insulating sash gives Rusco's exclusive MagicPanel® year 'round, rainproof, draft-free ventilation.

Built-In Waterproofed Felt Weatherstripping. Makes Rusco Windows completely weathertight, eliminates metal-to-metal contact, noise and rattling.

Positive Automatic Locking of vertical slide units in all open and closed positions. Spring-bolt action.

Smooth, Effortless Operation. Rusco sash sections slide in a felt cushion—easily, quietly, without effort.

Sliding Glass Panels removable from inside for easy cleaning. Sliding glass inserts slip out in an instant for safe, convenient, inside cleaning.

Extra capacity... distinctive appearance

the UNARCO ROYAL-AIRE

Efficient in operation and smart in appearance, the UNARCO *ROYAL-AIRE* is an air conditioner capable of conditioning rooms of many sizes and dimensions.

The *ROYAL-AIRE* is styled to fit into most any background. Four-way directional louvers, generous-sized components and a large, vertical cooling coil provide maximum dehumidification and cooling. The exclusive UNARCO pump-down control system guarantees *instant* cooling coil response and reduces system operating pressures.

Available in 5 full-rated capacities, the *ROYAL-AIRE* is especially adaptable to many different and normally difficult kinds of installations. Being "demountable" into three sections, it is extremely easy to handle and install.

For stores, offices, cafeterias or auditoriums, the UNARCO *ROYAL-AIRE* will do an efficient, dependable job of air conditioning. For further information and descriptive literature address the Heating and Cooling Division

UNION ASBESTOS & RUBBER COMPANY
332 South Michigan Avenue • Chicago 4, Illinois

the UNARCO ROYAL-AIRE... a quiet, efficient AIR CONDITIONER

problem: Lower ceiling to conceal air conditioning ducts

solution: ACOUSTONE* mineral acoustical tile installed with the concealed Z-Spline System

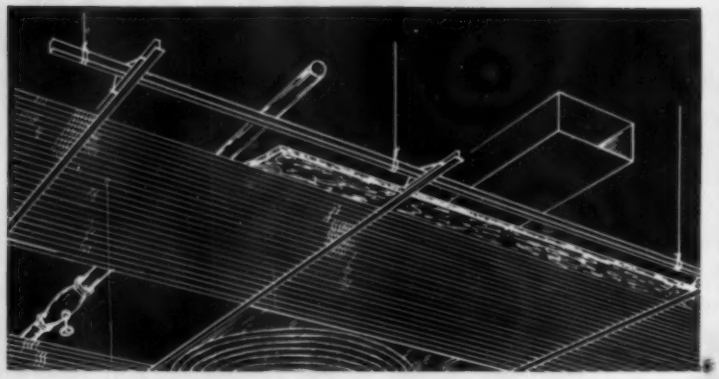
Mechanical suspension of the ACOUSTONE tiles is accomplished by engaging kerfs of tile with lower flange of Z-Splines, attached to carrying channels, bar joists, or wood furring or framing members. This provides a new, lower ceiling level with space above for air conditioning ducts.

How you can solve your

problem: Conceal above-ceiling services, but provide easy accessibility for maintenance

solution: CORRUTONE installed with the E-Z-S System

The E-Z-S System for mechanical suspension of CORRUTONE or ACOUSTONE is installed by simply attaching exposed painted Z-Splines to 1½" carrying channels, bar joists or wood furring or framing members. CORRUTONE panel, which holds a sound-absorbent mineral wool pad, is then placed on lower flange of the spline. Panels lift out readily for easy access to services above.



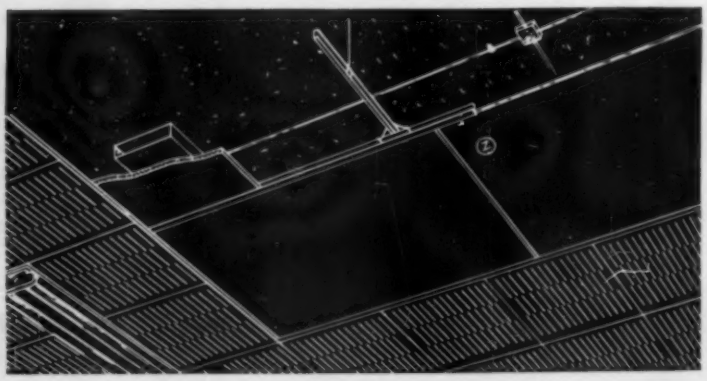
Sound control is a job for experts!

For complete drafting room details and assistance in planning, contact your nearby ACOUSTONE contractor. Also see Sweet's file 10a/Uni or write United States Gypsum, 300 West Adams Street, Dept. PA-2, Chicago 6, Illinois.

problem: Provide an economical school ceiling that's sound-resistant and fire-safe

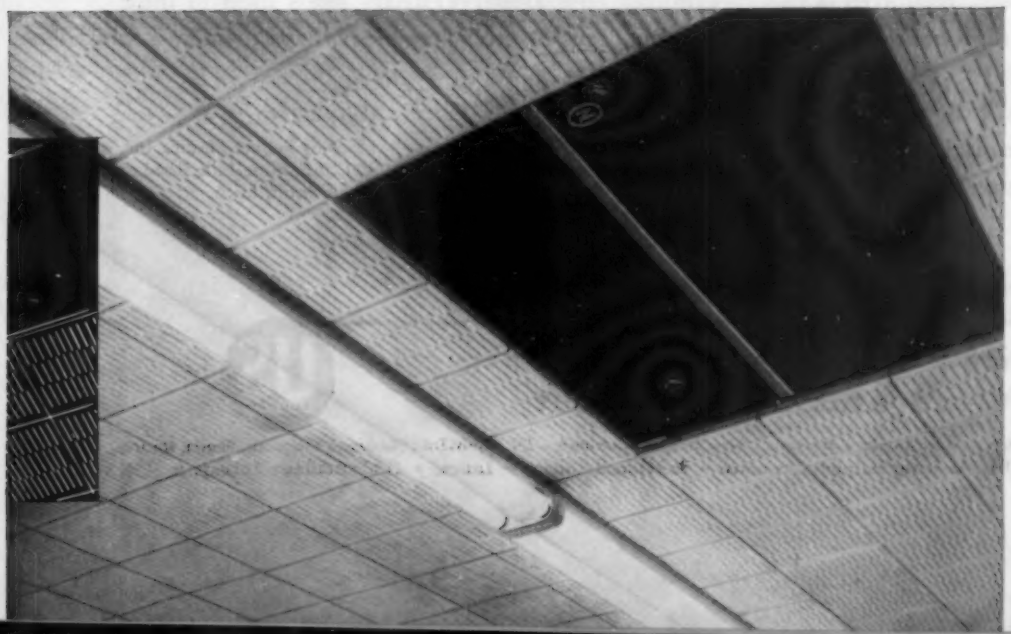
solution: Slotted AUDITONE* adhered to Z-Board, suspended from bar joists

Mechanical suspension of fire-resistant gypsum Z-Board on Z-Splines is an economical method of providing a base for adhesive installation of Slotted AUDITONE fiber acoustical tile, available with flame-resistant coating. The ½" x 2' x 8' Z-Board is placed on top of the lower flange of the Z-Spline, providing a smooth, level surface.



*T. M. Reg. U. S. Pat. Off.

ceiling problems quietly!

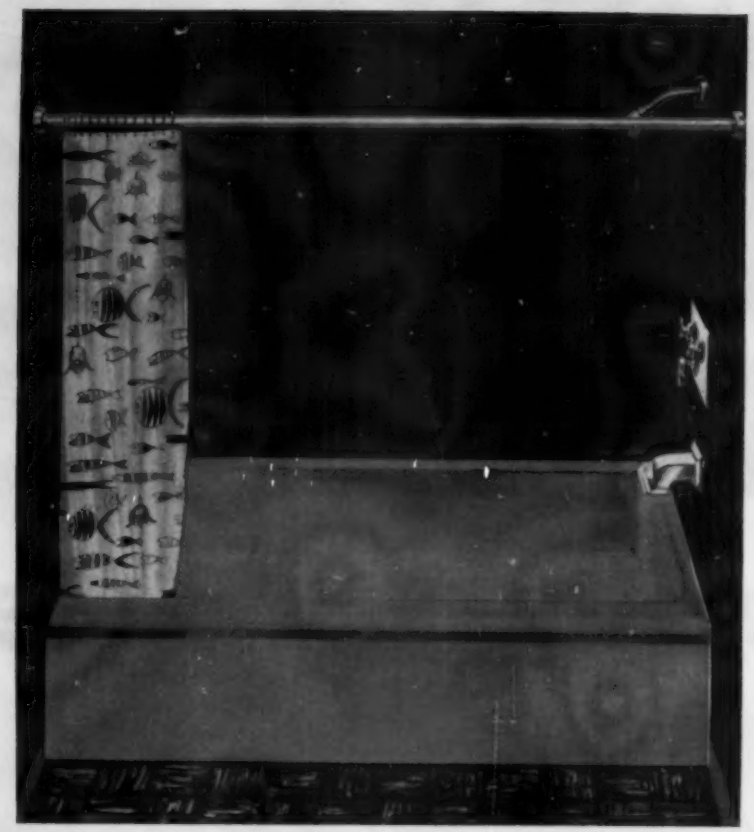


UNITED STATES GYPSUM

The greatest name in building

USG
UNITED STATES GYPSUM

Here's why
Reinforced Vibrin
is being used for
"PLASTEX"
MOBILE HOME BATH TUBS *



LIGHT IN WEIGHT—Weighs only a small fraction of ceramic or porcelain ware. Costs less to ship, less to handle. Puts less load on floors.

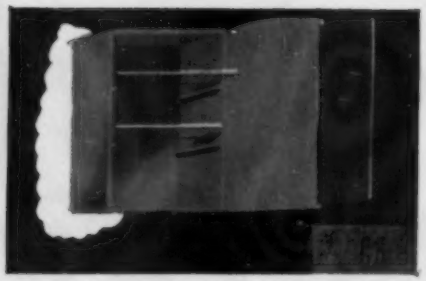
LASTINGLY BEAUTIFUL—Its high-gloss, nonporous surface is extremely durable—resists chipping, cracking, or crazing.

WARM TO THE TOUCH—Transmits heat very slowly; never feels cold; keeps water warmer, longer.

WHY NOT reinforced Vibrin for...

...*household* wash basins and tubs?

...toilet tanks and bowls?



...medicine cabinets?

VERSATILE VIBRIN® polyester, reinforced with glass fibers, yields products that are, pound-for-pound, even stronger than steel...but far less expensive to mold! They are dent-proof, rust-proof, and highly resistant to heat, abrasion and chemicals. VIBRIN can also be pigmented with a variety of attractive colors.

Consider how ideally VIBRIN lends itself to these and hundreds of other items—perhaps to some *you* manufacture!

Write Naugatuck Chemical today.

*Made by Palmer Plastics, Inc. 13120 E. Nine Mile Road, East Detroit, Mich.

Naugatuck Chemical

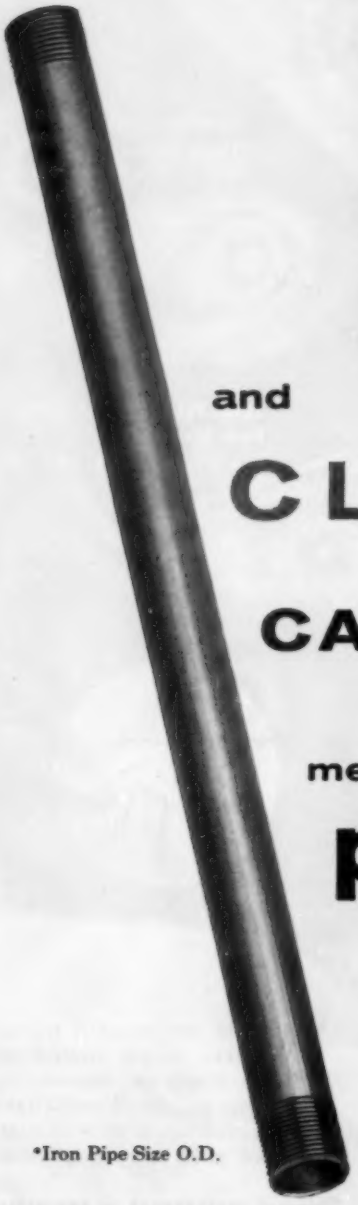
Division of United States Rubber Company
Naugatuck, Connecticut

BRANCHES: Akron • Boston • Charlotte • Chicago • Los Angeles • Memphis • New York • Philadelphia • IN CANADA: Naugatuck Chemicals, Elmira, Ontario
Rubber Chemicals • Synthetic Rubber • Plastics • Agricultural Chemicals • Reclaimed Rubber • Latices • Cable Address: Rubexport, N. Y.

Industrial research will never end...

• The soon-to-be-completed Research and Development Center of the American Can Company in Barrington, Illinois, typifies modern planning for ever-continuing progress. Situated in attractive surroundings in the countryside northwest of Chicago, it will provide a new home for objective research and practical application for years to come.

AMERICAN CAN COMPANY'S NEW RESEARCH AND DEVELOPMENT CENTER, BARRINGTON, ILL.
PLUMBING CONTRACTOR: S. J. REYNOLDS CO., INC., CHICAGO.
GENERAL CONTRACTOR: LASALLE CONSTRUCTION CO., CHICAGO.



and

CLOW "I.P.S."* CAST IRON PIPE

meets the demand for

permanence!

In this new Research and Development Center, Clow "I.P.S." (threaded) Cast Iron Pipe is used for downspouts, drains and waste lines and will last throughout the long, purposeful life of the building. Clow "I.P.S." Pipe is corrosion-proof, requires no replacement, no upkeep. Installation is fast, economical . . . permanent.

Clow (threaded) Cast Iron Pipe has same O.D. as steel pipe, is available with plain or threaded ends, in 3, 4, 5, 6, 8 and 10" sizes in 18' random lengths. Also available with integral caulking hub on one end (other end plain) in 18' random lengths 4, 6, and 8" sizes.

Clow Cast Iron Pipe can be...

on the job, with ordinary tools of the piping trade.

*Iron Pipe Size O.D.

JAMES B. CLOW & SONS

201-299 North Talman Avenue • Chicago 80, Illinois

Manufacturers of Cast Iron Pipe
Wholesalers of Plumbing and Heating Supplies

CLEAR PRISMATIC GLASS

AMCOLENS®...

tomorrow's lens lighting TODAY!

AMCOLENS, an advanced concept in lighting, is the ultimate for the improved illumination of tomorrow.

The precision engineering of AMCOLENS clear prismatic glass lens offers you the lighting of the future with all these unique advantages:

- **Crystal clarity**
- **Undiminished light transmission efficiency**
- **Unaltered white lamp light transmittance**
- **Precise light direction control**
- **Predetermined light distributions**
- **Minimum brightness in glare zone**
- **Edge-light on ceiling for contrast relief**

This enlarged segment of Amcolens illustrates prism detail. AMCOLENS utilizes clear glass prisms, the most exact means known to science for controlling the direction of light.

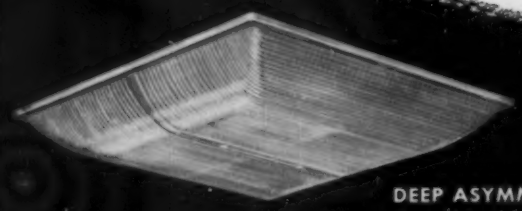
A cross section of a typical Amcolens shows control of light. Precision engineering achieves multiplied useful light utilization below 60° with minimized glare zone brightness.

AMCOLENSES are the result of original ART METAL lens research and are available only in ART METAL complete lighting equipments.

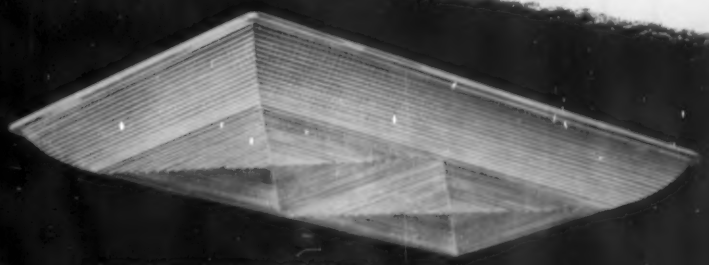
AMCOLENSES ARE ANOTHER *Lighting Research* DEVELOPMENT OF ART METAL

18 AMCOLENSES

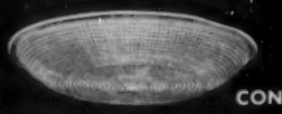
are precision engineered
for specific lighting applications.



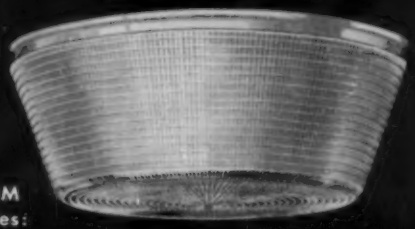
DEEP ASYMMETRIC
One Size:
10⅜" Sq.



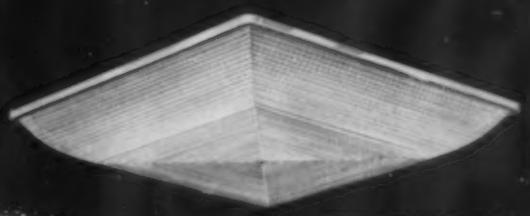
TWO-LIGHT DEEP SYMMETRIC
One Size:
9½" x 16½"



CONVEX
One Size:
7½" Dia.



LENSDRUM
Three Sizes:
9½", 11⅝", 13⅝" Dia.



DEEP SYMMETRIC
Three Sizes:
8½", 10⅜", 12" Sq.

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ART METAL Catalog 255, dedicated to the advancement of incandescent lighting through original research development, provides detailed information on Amcolens, plus factual data on all ART METAL lighting equipment with unbiased test data on lighting performance, evaluated by Electrical Testing Laboratories, Inc.

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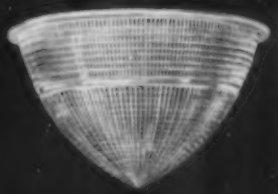
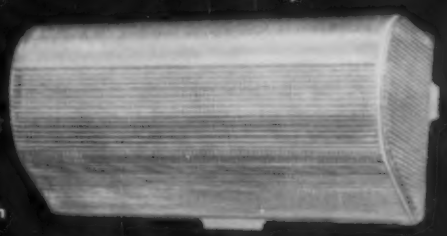


AREALENS
One Size:
7½" Dia.



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NO LOSS of sales reported when Hess Brothers, Allentown, Pa., department store, installed this high pressure air conditioning system on its three upper floors. Linked with system already in use on lower floors, it points up the advantages of...

Kno-Draft High Pressure Air Diffusers

A neat solution to air conditioning a department store without disrupting sales was worked out by Carrier Corporation engineers for Hess Brothers, Allentown, Pa.

Key elements in the installation are Kno-Draft High Pressure Air Diffusers. These permit use of smaller than ordinary ducts, yet provide *draftless* air distribution and equalized temperature throughout the area. Built-in sound baffles assure quiet air delivery.

Installation was done in quarter sections on each floor simultaneously. Thus, only minimum rearrangement of selling space was necessary.

Dropped ceilings cover half the depth of ducts, giving them a shallow beam appearance. The Kno-Draft High Pressure Air Diffusers themselves are easily and quickly attached to the ducts.

Kno-Draft High Pressure Air Diffusion is one of the newest and most efficient methods of air conditioning. Connor engineers have prepared an authoritative 48-page textbook on the subject. Write on your letterhead for a copy of Bulletin K-33. Connor Engineering Corporation, Dept. N-55, Danbury, Connecticut.

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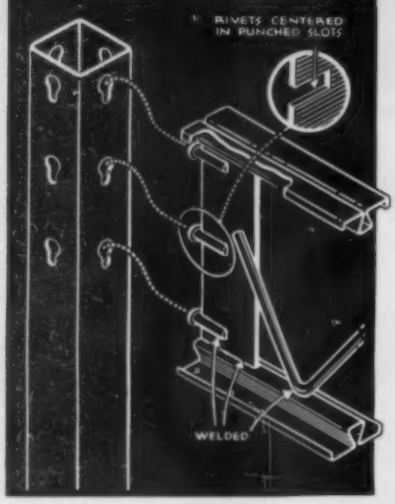
TWENTIETH CENTURY ACHIEVEMENT IN REDUCING CONSTRUCTION TIME

V-LOK INTERLOCKING STEEL FRAMING



V-LOK is Macomber's contribution to the men who design, to the general contractors who build and to the owners who want earlier occupancy in a steel framed building.

The driven joint—eliminating bolting, riveting and welding from the erector's job—builds ruggedness into a steel frame—locking it into a rigid structural unit in a very few days instead of weeks.

V-LOK simplifies the designing job — meets the load and span requirements of schools, commercial and industrial work and joins readily with all collateral materials.

If you have a school job—see what V-LOK will do to your costs per square foot. A framing system that puts you ahead of schedule in a one-trip erection job!

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AMERICA'S MOST TALKED-ABOUT STRUCTURAL SYSTEM

STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER INCORPORATED

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• ENGINEERING • FABRICATING AND ERECTING •

NAILABLE STEEL JOISTS
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LONGSPANS
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BOWSTRING ROOF TRUSSES
•
METAL DECK
•
V-LOK STEEL FRAMING
•
STRUCTURALS

FACT: FROM SCHOOLS TO SKYSCRAPERS YOUR ELECTRICAL PROBLEMS ARE OUR ASSIGNMENT

Westinghouse men like these are working with architects throughout the country on all types of building construction.

They are electrical specialists.

Their assignment is to help you solve electrical problems—from classroom lighting in a school to a complex electrical system for an industrial plant.

Check the examples on the next three pages.

THE MAN WITH THE FACTS

He's the construction sales engineer in your nearby Westinghouse office. His assignment is to analyze your electrical problems, then quarter-back the team of specialists that help you solve them. We call him *The Man With The Facts.* Why don't you call him? DP-5010-A

YOU CAN BE **SURE**...IF IT'S

Westinghouse

Genesee Hospital, Rochester, N. Y. Architects (for new section): Waasdorp & Northrup. Consulting Engrs: Crocker, Cherne & Dickason, Associated Consulting Engineers.

Building-type switchboard is a factory-assembled unit containing modern circuit breaker protective devices. Switchboard is compact and completely safe.

FACT: THEY ASSURED DEPENDABLE SERVICE THROUGH CIRCUIT BREAKER PROTECTION

Dependable electrical service, to insure trouble-free operation of patient services, was a paramount consideration when the Genesee Hospital extension was planned. Proper protection of valuable equipment and operating personnel was a necessity.

A Westinghouse apparatus specialist was asked for advice on an electrical system that virtually eliminates outages. The foundation is a Westinghouse building-type switchboard with circuit breaker protection for the 24 feeders. In case of a fault or overload, service is restored quickly. A flip of the breaker handle does it.

Why not have your Westinghouse specialist help you with similar problems?

DP-5010-B

YOU CAN BE **SURE**...IF IT'S

Westinghouse

Hamilton Standard Division of United Aircraft Corp., Windsor Locks, Conn. Architects and Engineers: Albert Kahn Associated Architects & Engineers, Inc.

FACT:

THEY MET RIGID PRODUCTION REQUIREMENTS WITH HIGH-VOLTAGE DISTRIBUTION

For efficient operation of a plant's production line machines, voltage must be held constant.

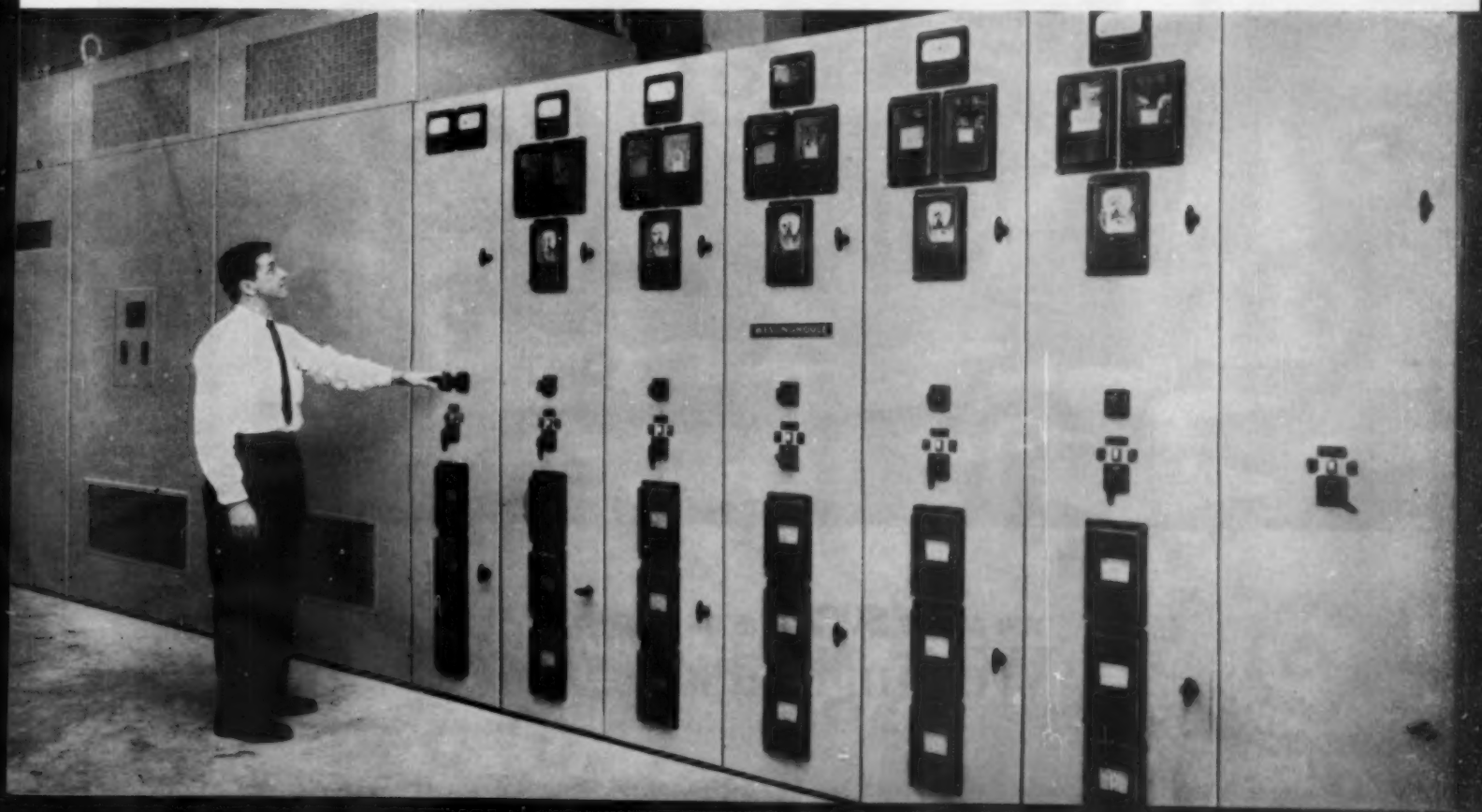
This Westinghouse installation incorporates an electrical system that utilizes a main high-voltage switchgear station. Each high-voltage circuit breaker in the switchgear line-up protects a feeder to a production load area.

At each center of load, a step-down power center provides operating voltage, distributed in short runs. Voltage variations are minimized.

Your Westinghouse specialist can work with you on similar electrical problems. Call him in through your Westinghouse construction sales engineer.

DP-5010-C

High-voltage switchgear station is the hub of the electrical system. It provides maximum protection and efficiency.



Elm Hill School, Newington, Conn. Architects (for new extension): Carl J. Malmfeldt & Associates, Hartford, Connecticut. Consulting Engineers: Henri B. van Zelm & Associates, Hartford, Connecticut.

FACT: THEY SOLVED SHADOW PROBLEMS CAUSED BY LOW CEILING JOISTS

Main support joists in this new classroom created a lighting problem: the possibility of shadows due to the broken ceiling surface.

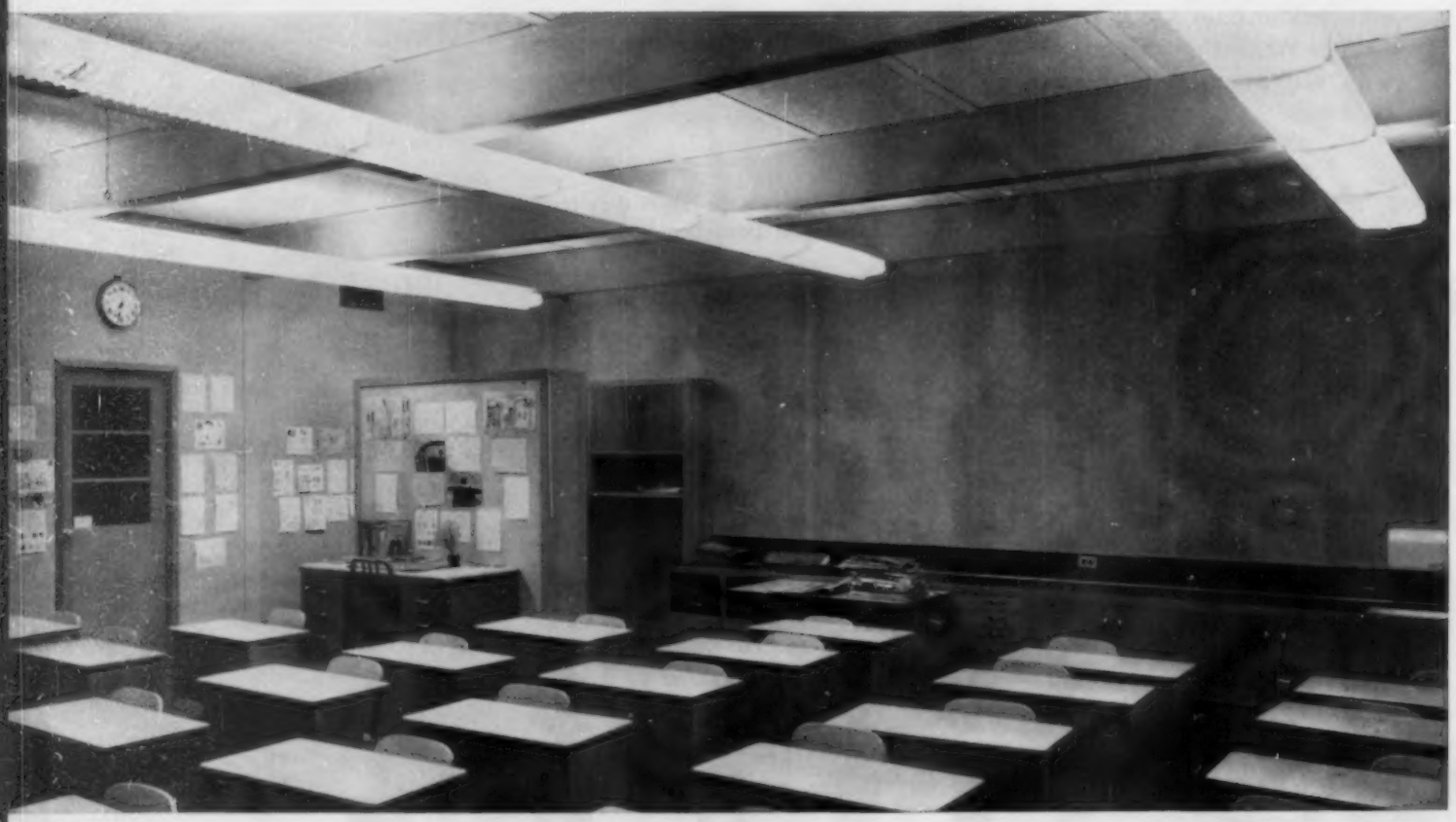
The architect and consulting engineer approved the new Westinghouse LC luminaire, mounted in continuous rows perpendicular to the ceiling joists.

Shadow problem: solved. In fact, 50 foot-candles of shadowless, direct-indirect illumination were provided—a result you, too, can secure.

Why don't you call your Westinghouse specialist to help you solve similar problems?

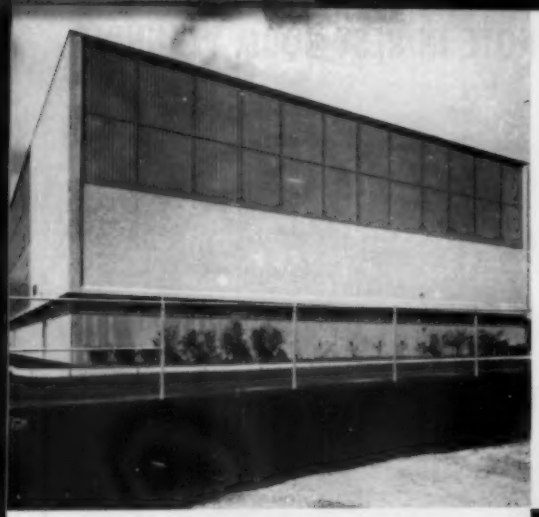
DP-5010-D

LC fluorescent luminaire, a direct-indirect type, provides high illumination in all parts of the room.



YOU CAN BE SURE...IF IT'S

Westinghouse



OWENS-ILLINOIS GLASS BLOCK* PANELS daylight this huge gymnasium... INSULATE LIKE AN 8" WALL

Gymnasium at Northeastern University, Boston, Massachusetts. Shepley, Bulfinch, Richardson and Abbott, Architects. Volpe Construction Company, Contractor.

Panels of Owens-Illinois light-directing Glass Block provide even distribution of daylight throughout the gymnasium area. They eliminate "hot spots," glare and harsh contrasts.

The insulating efficiency of glass block makes designs like this possible. Glass block permit use of large glass areas without excessive heat loss.

BECAUSE Owens-Illinois Glass Block insulate as effectively as an 8" thick brick wall, huge expanses of glass block are practical even in a cold climate.

Glass block are strong and hard to break—perfect for a gymnasium use like this. They need no maintenance—perfect when panels are put in inaccessible places.

The complete Owens-Illinois Glass Block story is yours for the writing. Send for it and see how glass block can mean better sight, better light, lower maintenance and great new design freedom in school planning. Address Kimble Glass Company, subsidiary of Owens-Illinois, Dept. PA-5, Toledo 1, Ohio.

Formerly known as INSULUX

OWENS-ILLINOIS GLASS BLOCK
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OWENS-ILLINOIS
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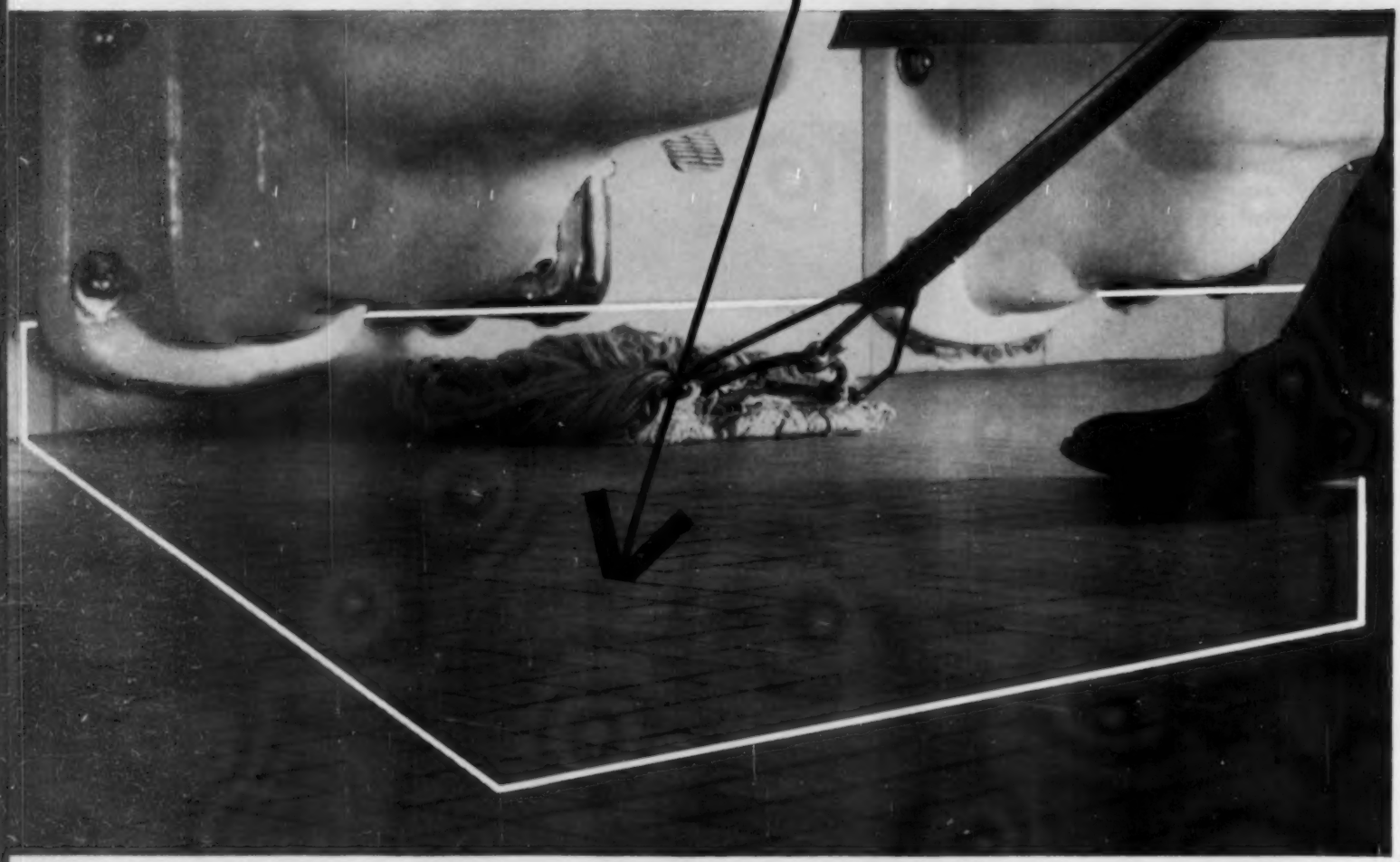
● MODERN NOTE IN REST ROOM PLANNING

Planned sanitation begins here...



• • • and this space is made possible by off-the-floor plumbing fixtures—the *only* modern approach in attaining and maintaining complete rest room *cleanliness* and *sanitation.*

By combining the ZURN SYSTEM of behind-the-wall carrier equipment with American-Standard off-the-floor fixtures, your rest room floors become fixture-free forever. Cleaning maintenance is simplified and complete around-the-clock sanitation is assured!

More and more, architects, contractors and building owners are specifying fixture-bare floors to safeguard public health. As a result, all major, up-to-date buildings are now being equipped with this modern system.

You, too, can realize the benefits of fixture-free floors by writing for the two booklets on modern washroom planning. "You can Build it and Maintain it for Less a New Way," and "The American-Standard Better Rest Room Guide." Send your request today. 111-1

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AMERICAN RADIATOR & STANDARD SANITARY CORPORATION
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√ modern appearance

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IDEA STARTER! Take a tip from the week-end handyman! He's discovered a new world of decoration and utility in Fiberglas*-reinforced Paneling. From simple sun screens like the one above, he's gone on to room dividers, carports, patios, greenhouses—setting standards by which your *new* homes will be judged. Consider this versatile paneling. Although it looks like translucent glass, it can't shatter. Despite its light weight, it's strong and weatherproof. It never needs painting because the color goes all the way through. Available in flat and corrugated sheets. Get all the details. Write for new A. I. A. folder. Owens-Corning Fiberglas Corporation, 598 Madison Avenue, New York 22, N. Y.

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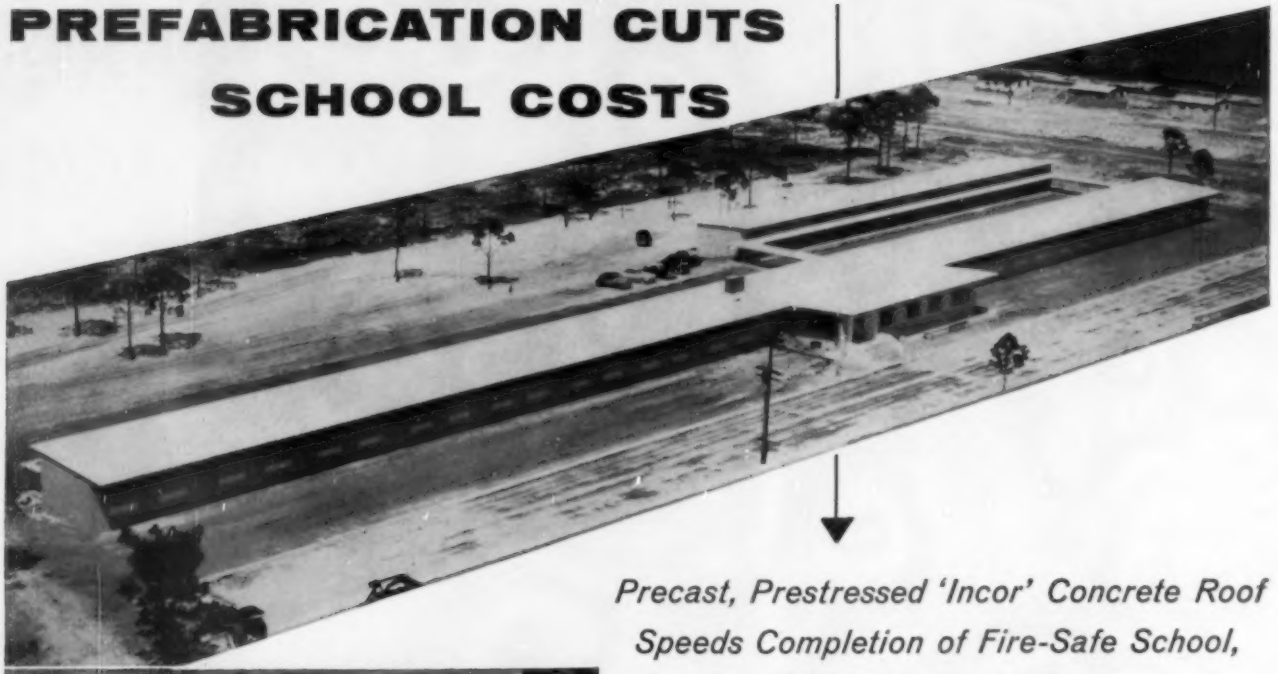
Owens-Corning supplies Fiberglas reinforcement to panel manufacturers. It does not manufacture paneling itself. REG. U. S. PAT. OFF. O-CF Corp.

PREFABRICATION CUTS SCHOOL COSTS



Precast, Prestressed 'Incor' Concrete Roof Speeds Completion of Fire-Safe School, At Big Saving in Cost

● With enough children being born every fifteen minutes to fill a classroom, and a million pupils in sub-standard quarters, the nation faces a race against time in solving the school problem.

Fort Lauderdale comes up with a sound solution. Dillard Elementary School, with 21 classrooms and about 25,000 sq. ft. of floor space, was completed 18 weeks ahead of schedule. Cost, $273,000.—$38,500. under the appropriation.

Built of fire-safe concrete, speed and economy pivoted on the roof system, consisting of 32,000 sq. ft. of double-tee, precast, prestressed roof slabs, 221 in all. Each slab is 34½ ft. x 4 ft., with 23 ft. clear span and 6 ft. cantilever on one side, 4 ft. on the other.

With ten hours' steam-curing, dependable 'Incor'* high early strength produced 4000 psi in 20 hours for pretensioning and stripping immediately thereafter . . . 11,000 sq. ft. of roof slabs placed in an eight-hour day . . . electric conduits and outlet boxes precast in the slabs.

Double-tee design gives pleasing beam effect. Quality concrete, with smooth exposed roof and ceiling surfaces, only required painting to finish.

Another example of attractive, fire-safe construction, faster and at less cost, thanks to the two I's —Ingenious design and 'Incor' performance.

*Reg. U. S. Pat. Off.

DILLARD ELEMENTARY SCHOOL
FORT LAUDERDALE, FLA.

Supervision:
BROWARD COUNTY BOARD OF PUBLIC INSTRUCTION

Architect:
VAN W. KNOX, JR.

General Contractor:
CALDWELL-SCOTT ENGINEERING & CONSTRUCTION CO., INC.

Precast, Prestressed Units

Designed by:
LAKELAND ENGINEERING ASSOCIATES, INC.
Lakeland, Fla.

Made and Installed by:
R. H. WRIGHT & SON, INC.

—all of Fort Lauderdale, except as otherwise noted

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LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 18 MODERN MILLS, 141,600,000 SACKS ANNUAL CAPACITY

William Hurd Hillyer

$ Details

Higher interest rates are foreseen by banking lookouts as springtide lifts business and construction to record levels. The first suggestion of an upswing occurred in mid-February when one of the larger New York banks raised its commercial short-term rate 1/20 of 1%. The average figure has since been inching up by minute fractions. Two reasons are given for this "creeping firmness": commercial borrowers are not paying their loans in customary seasonal amounts and the Federal Reserve System has been supplying the banks less liberally with loanable funds. Sensitive barometers, such as Treasury bills and loans by banks on Government obligations, have reflected a similar tendency. These indicators veer toward a possible tightness in municipal bonds and mortgages, sources respectively of public and private building financing.

Banking sentiment as to home mortgages took its first cautious turn this year when Homer Livingston, president of the American Bankers Association, warned against over-easy terms designed to stimulate housing starts, at the recent midwestern conference of the Mortgage Bankers Association of America. Livingston, who also heads the First National Bank of Chicago, was impressive when he declared that prosperity on the basis of "smaller and smaller" down payments coupled with "longer and longer" maturities "may not be a bargain." He advocates a change of law that will shorten maturities and provide FHA-VA down payments which are "reasonable" from the lenders' standpoint.

At the same conference Wallace Moir, president of the mortgage association, declared that "the end of the road" is in sight concerning liberalized lending. He questioned the ability of savings institutions to supply funds for 1955's estimated 1,400,000 housing starts. Moir decried both the current "100%" loan fashion and the "costly" supports Government is giving the home mortgage market to keep interest rates low. He reminded his hearers that mortgage debt on one- to four-family houses is rising ten times as rapidly as personal income. However, he admitted, whereas in 1930 the mortgage debt was 22% of the nation's total borrowings, it is now only an estimated 18% despite huge dollar increase and some 9½ millions housing starts during the past decade.

The money atmosphere has gained a further feeling of "closeness" from contra-seasonal business borrowings. Instead of the usual reduction during the first quarter, bankers this year have faced an increase of demand for business funds which has pushed up loans and depleted "excess reserves." At the same time Federal Reserve operations pulled funds out of the banking system in a deliberate tightening up process.

Yet another untimely factor that has given pause to a recently freehanded banking world is the circumstance that total production slid a trifle while the year was young, though it is still ahead of 1954. In like manner heavy public construction showed an unseasonal slowup as compared with the unslackening pace of private building, but construction of all kinds is in advance of last year. The record rate of house building may breed inflation, as seen by the United States Savings & Loan League; though Housing Administration officials insist that the credit fabric is sound and the activity justified. Fears of scarce money are likewise allayed by the President of New York's Federal Reserve Bank, who infers that Reserve authorities will think twice before tightening credit.

On the sunnier side, a little-publicized semiprivate undertaking—the Voluntary Home Mortgage Credit Program—is getting under way with Uncle Sam's blessing. Its plan should make Federally insured funds more readily available at mutually agreed interest rates to a wider distribution of qualified borrowers. There is a feeling, too, among bankers themselves, that they should assume a greater proportion of lending hazard. Exhorts the president of a Virginia bank active in "term" and installment credit: "Seize the initiative, despite what small risks may be involved!"

Bankers are approaching home improvement loans in similar spirit. From a slow start some years back, these one-time small fry are nearing an $8 billions total, with more than $1½ billion outstanding and with less than 1% net average loss. Until recently such loans were Government-insured under FHA Title I, but the current banking tendency is toward self-insured home improvement financing. Net losses through the years have turned out to be less than the cost of Title I credit insurance; hence the banks find it profitable to do this type of lending without Federal aid.

One large eastern bank, for example, has had its own modernization plan for more than two decades with a rate of $6 annually per $100 on 36-month maximum maturities. During the past seven years, on a $63 millions volume, the net losses were ¼ of 1%. In the Middle West a medium-sized banking institution reports a loss ratio of only 1/26 of 1% on its $9 millions uninsured loan aggregate since 1948. Now that so many activities are taking on modernization commitments, this uninsured loan trend should benefit all parties through substantial cuts, both in red tape and costs.

Despite shadows here and there, the general economic structure retains its stronger elements. These may be briefly listed:

Industrial production is recovering the ground lost earlier in the year and at last accounts was averaging some 6% higher than in '54;

Treasury capital is being replaced by private capital as the Federal National Mortgage Association sells the public half a billion of 2½% bonds;

Business failures are fewer than last year after a super-seasonal increase;

Municipal bond absorption by institutional and banking investors continues in heavy volume with school issues particularly favored;

Upsurge of machine tool orders is unslackened at this writing, averaging some 17% in advance of '54 and forepacing high industrial activity;

Bank balances are being augmented as banks make further progress toward nationwide reduction of "float" by speeding up check collections;

New orders at factories are coming in faster than at this time last year, with only few exceptions. The increase is reaching 35% in some key areas;

Depreciation charge-offs, estimated at $15 billions during the '54 twelvemonth, plus $7 of retained earnings, are strengthening industry's cash position.

In sum, signs point to continued and profitable business progress, with construction of all kinds leading. Funds will likely continue in fair supply, though at somewhat higher rates. The bogey, if any, is in the realm of inflation rather than in that of deflationary "recession."

drafting room efficiency-1

Do you remember the ads that used to start with "There's big money in drafting . . ."? Maybe they were right. Add up the payroll in any medium-sized drafting room for just one month and you'll agree —it's *big* money.

There are people who say too much money is sometimes spent in the process of drafting room production; that drafting costs can be cut 10%—15%—even 50% in extreme cases—without changing the quality of product. They say, and they back up their claims with a growing history of proved results, that closer attention to principles of sound production management not only gives a firm increased profit but also frees executives from trivial detail, giving them a chance to work where they themselves are most effective.

Among the people who say this are successful architects and engineers, men who have for years faced the same problems we face every day. In analyzing their clients' problems they turned up answers to problems of their own and it is these answers they put to work—in varying degree.

It is the intention of this series of three articles to do two things: first, to explore techniques these people use to cut the cost of drafting room production, and second, to uncover where possible the principles involved. Certainly no one technique will fit every drafting room. But if, as is claimed, all human production has something in common, then the underlying principles provide fabric from which new techniques can be cut to fit.

where are the costs?

In general it is agreed that the major cost in drafting room production is the cost for drafting labor. There is not much question about it. Costs vary from office to office and from job to job within any one office but it is a rare drafting room where the total of all other operating costs equals that paid for labor. As in most production where humans are involved, labor costs far outweigh everything else.

It is small wonder then that talk of "efficiency" revolves mostly around the human element in production, and means to help humans produce more and better work. The problem is one of an insistent growth of competition among engineering and architectural firms, a competition based not on the amount of fee but on the quantity and quality of work being offered *for the same fee.* Unless some very successful firms are mistaken, we will see that competition grow and grow, a competition rooted in increasingly efficient methods of drafting room production.

what is efficiency?

One thing that efficiency does not mean is "working harder." It was once pointed out that "to be strenuous is to put forth greater effort: to be efficient is to put forth less effort. Efficiency brings about greater results with lessened effort; strenuousness brings about greater results with abnormally increased effort."

An example of this is a comparison of today's automobile motor with one of, say, 1910. Today's motor develops tremendously more horsepower, not from consuming more fuel (actually it burns less) but from making more efficient use of the fuel it does burn. And that seems to be the goal in increasing any operational efficiency, *to increase what comes out of the machine in proportion to what goes in.*

An increased efficiency, in this sense, is synonymous with increased productivity. Charles Luckman, the architect, in a speech to the Producers' Council Annual Convention, defined "productivity" this way: "Suppose you have an apple tree that produces 500 apples. You can double production by planting another tree with the same yield. That is more 'production.' But if, through added skill, you get that first apple tree to yield 600 apples instead of 500, you have increased 'productivity.' "

So, applying it equally to automobile motors or apple trees or drafting rooms, let's take industry's definition of efficiency: "The ratio of output to input"; the ratio of what comes out of the machine in proportion to what goes in.

efficiency—and people

Yet, with all this talk about machines there is an even more important aspect of the problem to deal with: people just aren't machines.

No matter how much of the production expense is for human labor and no matter how badly we need increased production efficiency, human beings are hired to do the work and humans are a lot more complex than any machine. Machines have no wives

by Hans W. Meier*

at home nor ambition to do better things nor interest in the future. A good machine turns out a uniform quantity day after day; speed it up and it turns out even more. But humans have good days and bad days, problems they can lick and problems that lick them, abilities to do immense things in some fields—and to draw complete blanks in others. And humans alone have the great skills and technological know-how needed to produce a set of plans and specifications.

If human labor represents the chief cost in drafting room production, and if an increased efficiency of that production is desirable, then it follows that one good technique lies in understanding why people work and what helps them to work better. Industry has poured millions of dollars and years of study into the search for answers to that problem. The entire field of "Industrial Relations" is a product of that search. Testimony of results is the productivity of American industry today.

Industry found that human efficiency could be improved if industry would make, and follow, certain broad assumptions:

1. That a job can best be done by teamwork with each member of the team carefully chosen for the special abilities needed to do his designated part of the work. From this assumption has arisen the practice of "job analysis" and the present methods of personnel selection.
2. That thorough preplanning of production will help eliminate bottlenecks, confusion, and duplication of effort. In this area have been developed the methods of time and motion study, scheduling, co-ordinating, etc., known under the general title of "production planning."
3. That contrary to earlier beliefs, there is no "one best way" to do things and that the way must be left open for developing better methods as experience is gained in production. From this last assumption have come the studies in production management being carried out in factories and universities throughout the country.

* *Chief draftsman for Benedict, Backler & Kocher, Architects-Engineers, Downey, Calif.; Member, Industrial Relations Alumni Association.*

drafting room efficiency

At the drafting room level, none of this presents anything astonishing or particularly new. Consciously or not, we tend to follow those assumptions to some extent. We choose our personnel with quite a bit of care when we can. We do have some measure of planning about our drafting projects, and we certainly are all on the lookout for new and more efficient methods of production. As far as we go, we follow those assumptions and we accept them as being "good business" if nothing else.

But the startling increases in efficiency seem to come about when those assumptions are polished up, delved into, refined in operation. When drafting room production is thoroughly preplanned on the basis of time studies of previous work, a realistic schedule can be made and maintained; a schedule which generally saves man-weeks of effort lost in poor co-ordination and in meeting hastily set "deadlines." When personnel is *carefully* selected for special abilities, each person takes a place on the production "team." When each man and his work are respected for a vital contribution to the finished job, the resulting sense of participation and responsibility does a lot to ensure top-notch performance. When the team feels a pride in itself and its firm, a loyalty based on mutual understanding and respect, an identity with the firm's success and a confidence in their future together, then you'll have a hard-hitting crew who will show you how fast and accurately a job can really be gotten out.

Experts point out that none of this happens by itself. Having employes does not automatically make good management any more than having a saw automatically makes a good carpenter. Yet the skills of production management are learned skills, as more and more people are discovering. The techniques seem to be those of understanding just what it is that we are trying to do, carefully dividing the labor among personnel qualified to perform it, carefully planning the work to be done, and constantly being on the alert for a more effective way to do it.

These are some of the things that have brought American industry to the productivity we know today. It is not surprising that they can be applied, and are being applied, to increase drafting room productivity as well.

Bernard Tomson **it's the law**

Periodically, this column supplements Tomson's Architectural & Engineering Law *(Reinhold, 1951) by reporting summaries of cases decided and other matters of interest occurring since the publication of his book. A number of cases meriting more than a capsule treatment will continue to be discussed more extensively.*

PART III. ARCHITECT, ENGINEER, AND OWNER—THE EMPLOYMENT RELATION

Chapter 9—Agreements with Owners

The employment relation between architect or engineer and owner is entered into by a voluntary agreement between the parties; its creation and existence is governed by the general principles of contract law.

Louisiana. *Besson* v. *Oden*, 59 S. 2d, 221 (1952). Owners found it necessary to move into building on the date of its completion, and no objection was raised by the Contractor. It was held that the occupancy of the building prior to complaint regarding certain defects was not such ratification and acceptance of the Contractor's performance as to preclude the Owners from complaining about the defects. Furthermore, the Court held that, in the absence of specific evidence by the Owner as to the cost of repairing the defective work, the Contractor was entitled to the full contract price. The Court deducted from that price the figure of $30, which the Contractor himself had testified to as the estimated cost of repairing the defects.

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Mississippi. *Monroe* v. *Kimbrough Homes, Inc.*, 59 S. 2d 273 (1952). Action for breach of contract was brought arising from the fact that the Contractor had made his bid and began construction on the basis of the foundation plans, without reference to floor plans which contained specifications irreconcilable with the foundation plans. The Court held that under the contract the defendant had a duty to check all plans. It further held that the Owners, in allowing the work to proceed upon the assurances by the Contractor of later adjustment, had not waived their right to damages.

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Indiana. *Baird* v. *Aluminum Seal Co., Inc.*, 105 N.E. 2d 825 (1952). In an action upon a note given as security for the performance of a building contract under which the plaintiff was given the right to declare forfeiture if the Builder failed to procure FHA certificates by a certain date, the Court held that, inasmuch as the plaintiff expressly waived its right to declare a forfeiture at the time it accrued, the right could not thereafter be asserted in the absence of reasonable and specific notice of intent to reassert it.

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New Mexico. *Staley* v. *New*, 250 P. 2d 893 (1952). The Owner's agent obtained plans and specifications for a radiant heating system and these were referred to in the building contract and became a part of it. The Owner could not maintain an action for breach of contract and warranty against the General Contractor and heating Subcontractor for failure of the system to heat the house adequately, inasmuch as the Contractor and Subcontractor performed the work in accordance with the plans and specifications.

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Illinois. *Wolters* v. *Venhaus*, 112 N.E. 2d 747 (1953). In a suit by a Contractor to recover the balance due for construction of a house, the Owner counter-claimed for damages resulting from defective workmanship and failure to comply with plans and specifications on the part of a subcontractor. The Court held that, since the subcontractors had been paid in full on orders from the Owner, who had a right under the contract to withhold fifteen percent of the price until acceptance, the General Contractor was not liable for the default.

•

Idaho. *Puget Sound National Bank of Tacoma* v. *C. B. Lauch Construction Co.*, 245 P. 2d 800 (1952). The siding to which a Subcontractor applied paint was in a warped condition and the Subcontractor knew that the two coats of paint called for in the specifications would be insufficient, considering the poor siding and the sunny climate. Nevertheless, the Court said, "A contractor is required to follow the plans and specifications and when he does so, he cannot be held to guarantee that the work performed, as required by his contract, will be free from defects, or withstand reaction of the elements, or that the completed job will accomplish the purpose intended. He is only responsible for improper workmanship or other faults, or defects resulting from his failure to perform."

the private house

*"The ideal living unit, it was generally agreed, remains the one- or two-story family dwelling. . . . Only recently have designers and builders begun to recognize the automobile and the scarcity of servants as important factors in house design. They should now be taking into account, with data which should be provided by sociologists and home economists, the problem of the adjustable, expansible, and contractable house for all phases of the cycle of family life, the desirable use of increased hours of leisure, the adjustment of television into the home and the all-purpose or play-work-creative area."**

In "the production of architecture" — P/A's theme for 1955 — no building type is more difficult to analyze than the individual house. Consider the paradoxes in practice produced by house design:

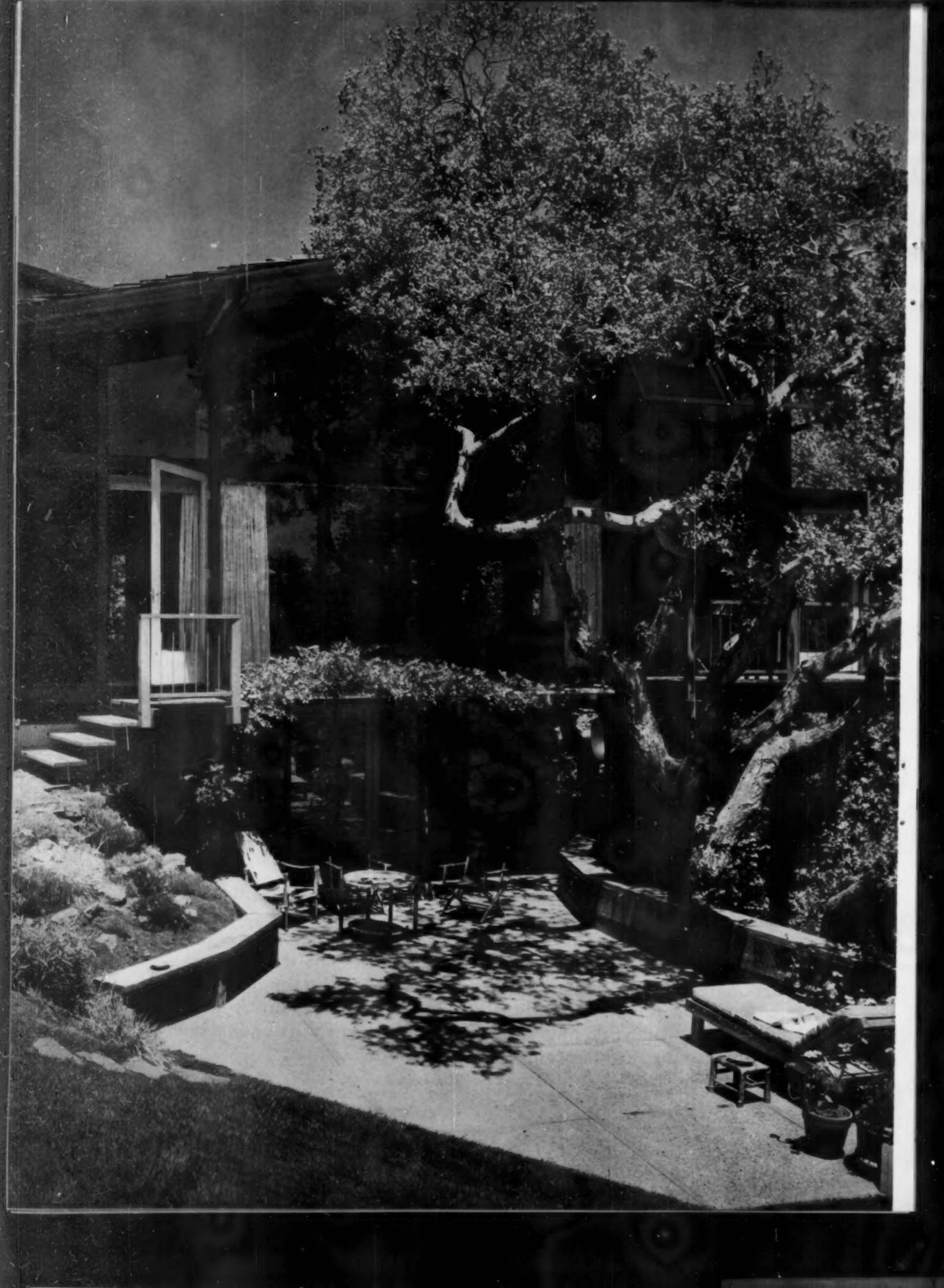
Private residential work is the largest item in the construction picture, taking almost 40 percent of the building dollar; yet it constitutes less than 5 percent of the architect's business.

Many architects feel, as E. Maxwell Fry has said, that "a house encloses most of the problems of architecture"; yet they agree with Robert Woods Kennedy that the very special requirements of individual clients make the house "the most demanding and discouraging of all specialties."

Since the house *is* a special problem, the "data which should be provided by sociologists and home economists," mentioned in the quotation above, is obviously needed; yet economists know that only an industrialized homebuilding industry with mass production of houses can hope to solve the housing need that is growing apace.

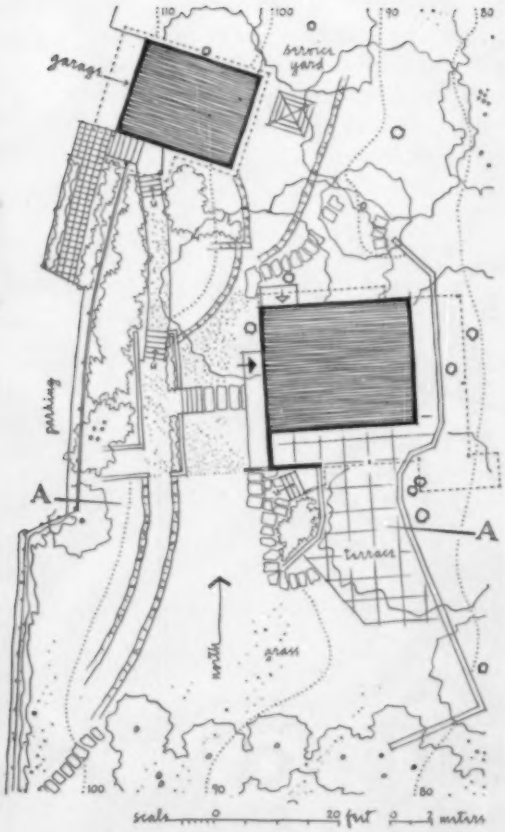
The architect, then, must increase his participation in a field of design that is "discouraging" and often unrewarding, if he is to fulfill his responsibilities. He must spend time finding social and technical solutions in a design category where individual designs will become proportionately less important. The fact that so many talented people practice in this field is remarkable; the manner in which they do it — their methods of production of architecture — and some outstanding current examples of the results, occupy the pages of this issue.

* The Architect at Mid-Century—Conversations Across the Nation. *Volume II of the Report of the Commission for the Survey of Education and Registration of the American Institute of Architects (Reinhold, 1954).*



Berkeley, California

architect	Vernon DeMars
general contractor	Albert Hirshfield, Jr.

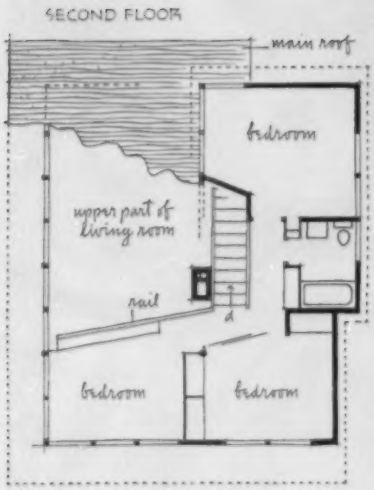


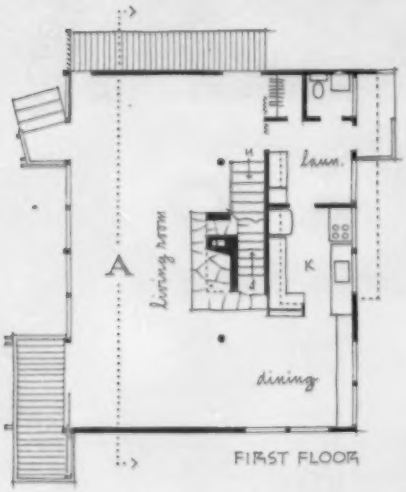
This engaging house for the architect's own use is one of the few private residences he has designed. DeMars, well known for his work in housing and redevelopment, is nevertheless interested in the design of the individual house as a laboratory of ideas for the more general market. He believes that vast strides have been made in the quality and design of the individual modern house, but is disturbed by the general lack of understanding of the esthetic principles governing mass-siting of the American production house. "The English have thrashed this out thoroughly for their particular problem," states DeMars. "Compared with their study of the 'townscape' we have hardly started to think about it." Though on a smaller scale than the "townscape" concept, the building complex on these pages is a lesson in fine site planning. Reminiscent of Japanese solutions, architecture and landscape have been treated as a unified theme. As a solution to this extremely steep site, and as a means of introducing the house into its setting with the least disturbance "propping the house up on stilts among the tree tops" suggested itself to the architect. "Then with terracing and modeling, to give some usable flat area and the impression of more."

Photos: Roy Flamm

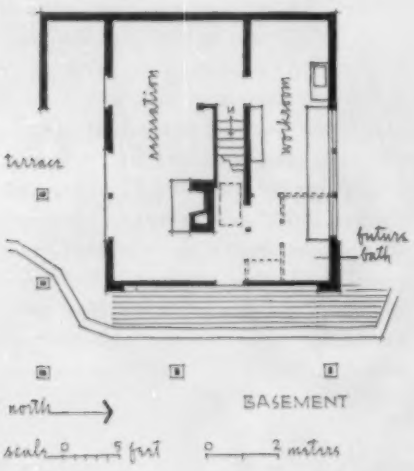
Section at A

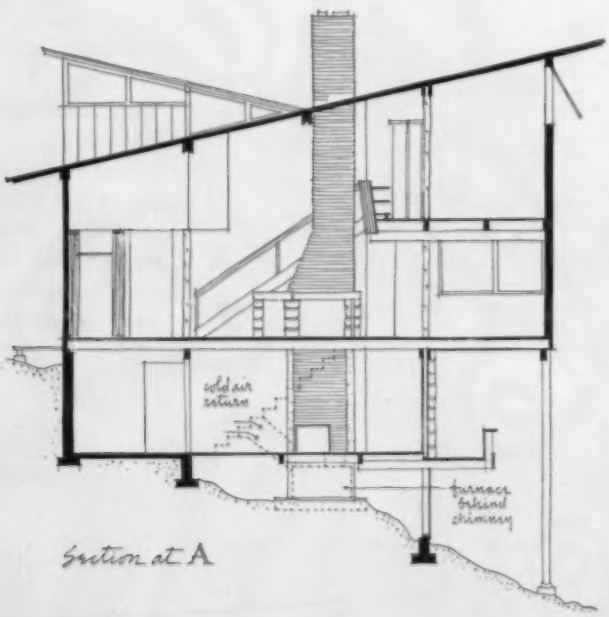
the private house: Berkeley, California





"As the design developed," relates the architect, "the similarity to a Japanese situation became more evident, and the design character was allowed to lean in that direction." The gravelled entry court with stepping stones (*photo above*), the "Tokonomo" post, the Shoji screens, which close off the guest bedroom, and the strict modular pattern of the big glass wall (*photo of living room right*) are quite literal Japanese details. However, since the house is not lived in nor furnished as a Japanese house, no attempt was made to be rigidly consistent. Exterior wall coverings are either cedar shakes or redwood boards. These have been stained dark-brown — the color of weathered redwood. Sash and doors have been painted a light gray and all exposed structural elements, barn red, a color long-lasting and pleasant in the green surroundings. Steel was originally intended for the structural frame but later changed to wood "when the idea of a cagelike framework dropping to the ground seemed to be a way to regularize and organize the design." A 4′x8′ structural module has been maintained throughout, employing the post, beam, and plank system.





Section at A

The dining end of the living room (above *and* left) *is purposely low, its ceiling stained quite dark to give a sense of cavelike cosiness, in contrast to the light airiness of the two-story living room. The kitchen* (below) *may be closed off from the dining room by folding doors. Inside walls are covered with plywood or redwood vertical boarding. A forced warm-air system, employing 4 in. flexible ducts, was of particular design advantage in this house, in which most of the structure is exposed.*

In detailing the big window in the living room (below), *the architect made a special point of keeping the glass far toward the inside, thereby exposing as much of the frame on the outside as possible. "This tends to avoid the 'wrapped in cellophane' look and lets the structural members carry through in the design. However," adds DeMars, "I would never propose the big window as a general solution." Large glass areas, he feels, are appropriate only where privacy is protected, as on this site. Skyglare is broken, in this case, by the large oak which filters the light through a fine lacework of foliage and also provides shade for the balcony* (right), *suspended in the treetop. Doors to the balcony slide on tracks to the outside, leaving a large, unobstructed opening.*

Greenwich, Connecticut

This house for New England is of exceptional interest, not alone for its inherent qualities but because it was designed by a San Franciscan who is distinguished for his sensitive and practical solutions for California living. Hill went to considerable pains to isolate the basic differences in climate, terrain, natural growth, and sun conditions that affect designing for the northeast. While in California, trees such as eucalyptus and pine tend toward a regular pattern, with strongly emphasized verticals, and the live oaks, though rather bushy and ground hugging, also form regular patterns; Hill noted that the hardwoods that luxuriate on the Greenwich site make highly irregular shapes, broken by "dancing all over" masses of leaves. The land, too, is various, broken by rock outcroppings and a ravine through which a brook flows.

From these observations, Hill concluded that an appropriate scheme would be a broken, or stepped-back plan, at once echoing and taking best advantage of the site. Happily, this also made capital of the view of the brook and an old stone bridge to the southwest. As a result, all major living areas have windowed corners opening to the living terrace, which both command the favored outlook and welcome the prevailing breeze. Within the house, the stepback scheme provides a remarkable visual continuity, with a glass wall always continuing beyond the wall or pier that defines an adjoining area.

The house is wood framed, with waxed-concrete floors, in which are embedded the radiant-heating coils. Under large glass areas, continuous convectors are built into the window sills, so that cold air from the glass surfaces is warmed by the rising hot air.

Hill's work to date has been almost wholly residential, though he readily admits that he would like to have more commissions in the nonresidential category. "My guess," he says, "is that residential work is the backbone and supporting type of construction of 85 percent of San Francisco offices." All in all, he reports, they make a "go of it . . .

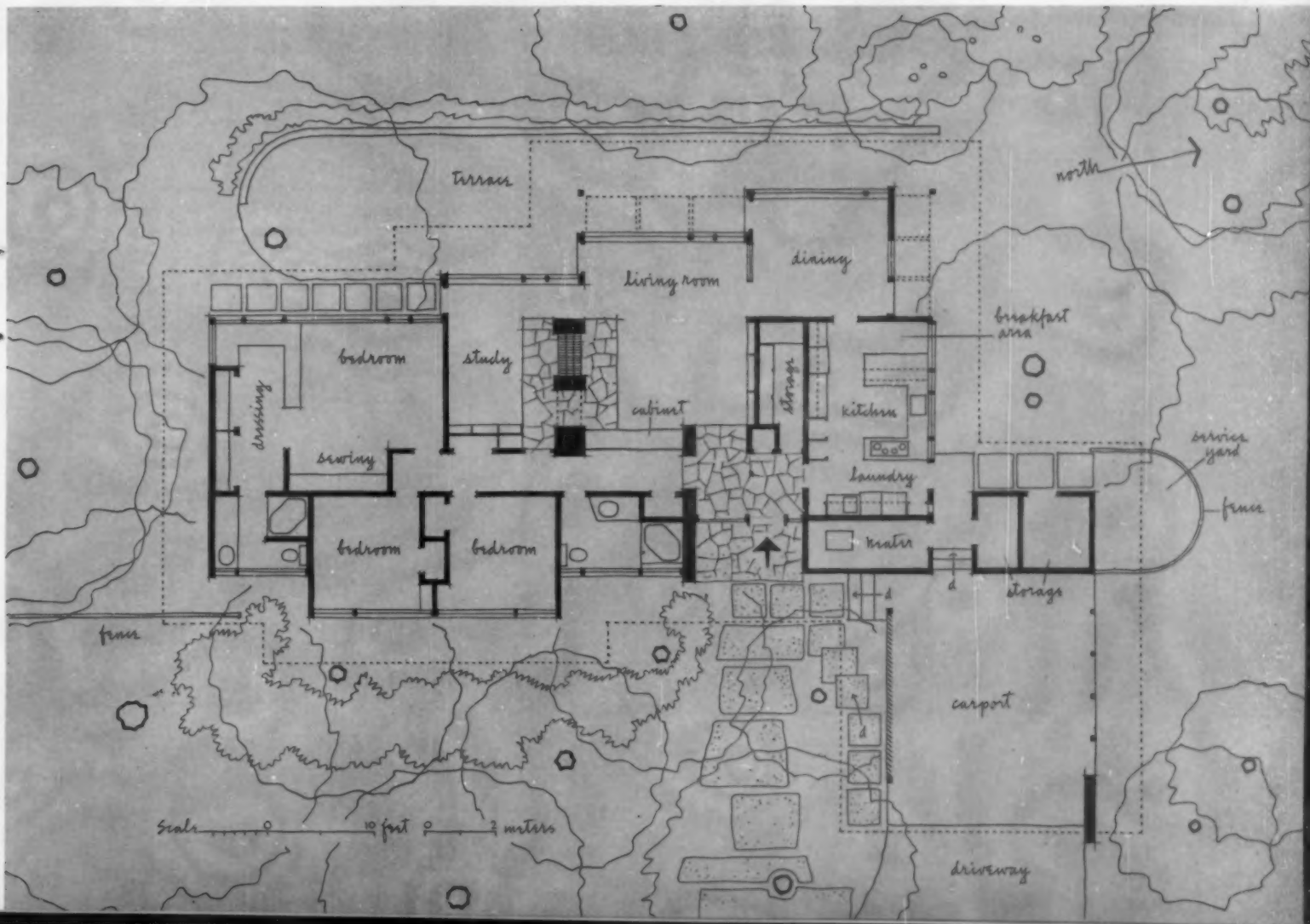
"I enjoy tremendously the variety and personal quality of residential work. There are no two jobs alike; each site is different; each budget; each problem; to say nothing of the individuals involved. . . . I have had my own office for some seven years now, and we are doing a little over our 200th job."

The flagstoned terrace (left) *is an outdoor extension of all major living areas. Exterior walls are chiefly cedar, while ceilings and roof soffits are resawn pine stained gray-gold. Steel sash are used throughout.*

At the entry (below) *floors, both indoors and out, are flagstone, practical for winter snow, as well as serving, along with interior fireplace breasts and stone piers, to relate indoors and outdoors.*

Photos: Lionel Freedman

architect	Henry Hill
associate	John W. Kruse
supervising architect	Edward L. Barnes
landscaping, interiors	Henry Hill
general contractor	Robert Chuckrow



In the superbly detailed kitchen (left), *three distinct areas are provided—service area, including washing machine, cooler, and storage units (foreground); food-preparation center; and a sit-up eating counter. Through the door in the background is a glimpse of the dining room* (above), *which overlooks and opens to the terrace.*

The master bedroom (above) *is also on the view side of the house; in one corner (left of photo) is a commodious dressing area, while a special alcove is provided for sewing.*

Exterior wall of the bathroom near the entry is mainly of glass; the masonry area recalls the rugged site.

Between living room (below) *and dining room, a translucent-glass panel forms a partial screen.*

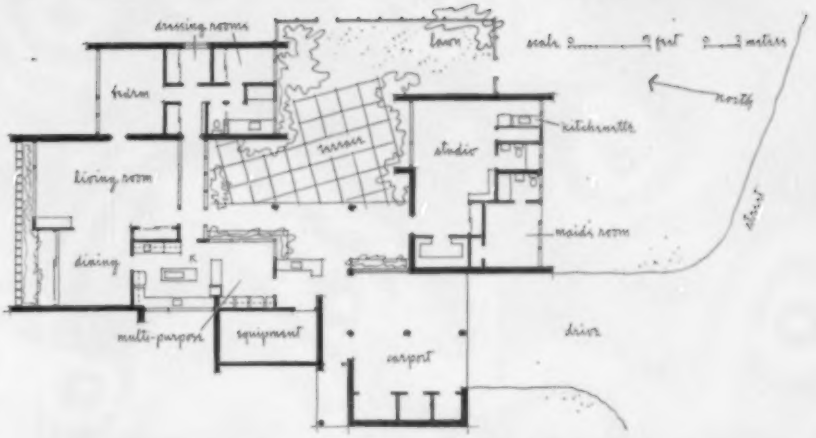
McAllen, Texas

architect | Richard S. Colley
general contractor | J. Lee Gore

As this site, an old orchard in the Rio Grande valley, offered little outward visual interest, the architect focused the three sections of the residence on an interior patio. This inner area provides a picturesque and very useful outdoor living space protected from the intense sun by large roof overhangs, sun screens, and strategic planting. The largest of the three building elements houses living quarters for two adults. Another unit, featuring a spacious room with a large north window, kitchenette, bath, and storage area, serves ordinarily as a studio for the owner's wife, who is an artist. It also doubles as a self-contained unit for overnight guests. Facing away from the central patio is a maid's apartment with its own little garden and private entrance from the driveway. A carport containing built-in storage closets along one entire wall forms the third element. The buildings are well related to each other and planned for maximum ease of circulation. The owners are particularly satisfied with the intimate relationship of the terrace to kitchen and living room. This arrangement has proved conducive to leisurely, effortless entertaining of either large or small groups of people. The combination studio-guest room has also been found to be very practical since it has all of the features and convenience of a separate apartment. A reinforced concrete slab supports the post and lintel frame. The roof is woodframed with 1" sheathing, 4-ply built-up roofing, and gravel surfacing. Walls are wood studs faced with plywood, or brick cavity walls of local hand-made sand brick, for the most part running parallel to the prevailing breeze. Carpentry work was kept as simple as possible because of the lack of skilled carpenters in this area.

West elevation (acrosspage) *is windowless except for sun-screened kitchen window. Exterior walls are of western red cedar boards and battens, and hand-made sand brick. Carport and studio unit* (above) *shield central patio* (below) *from the street to provide a completely private terrace. Large window of studio* (shown in photo below) *and main living quarters face this pleasant space. Terrace and adjoining rooms are well protected from the intense sun by wide roof overhangs, sun screens, and planting.*

Photos: Ulric Meisel



End wall of dining room (above) *is a 12" cavity wall, in which both faces are built of hand-made sand brick. Window wall is protected from sun and insects by a grid made of 2" x 12" cedar boards covered with bronze screening. A planting bed between window and screen helps to temper reflected sunrays. A second, more informal dining area, seen at far end of kitchen* (left), *overlooks the patio. Kitchen is planned around a central island unit containing the range. Flooring in this area is split paving brick.*

Ceiling in studio (right) *slopes up to large window facing north to patio. Light can be carefully controlled by vertical blinds. A screened passageway* (below), *forming the background to outdoor seating group, connects bedroom wing at right with kitchen and living area at left. Patio floor is paved with sand brick. Clerestory fins above are for the control of the flattened sunrays during winter mornings and afternoons.*

Woodside, California

architects	Wurster, Bernardi & Emmons
landscape architect	Lawrence Halprin
general contractor	R. F. Royden

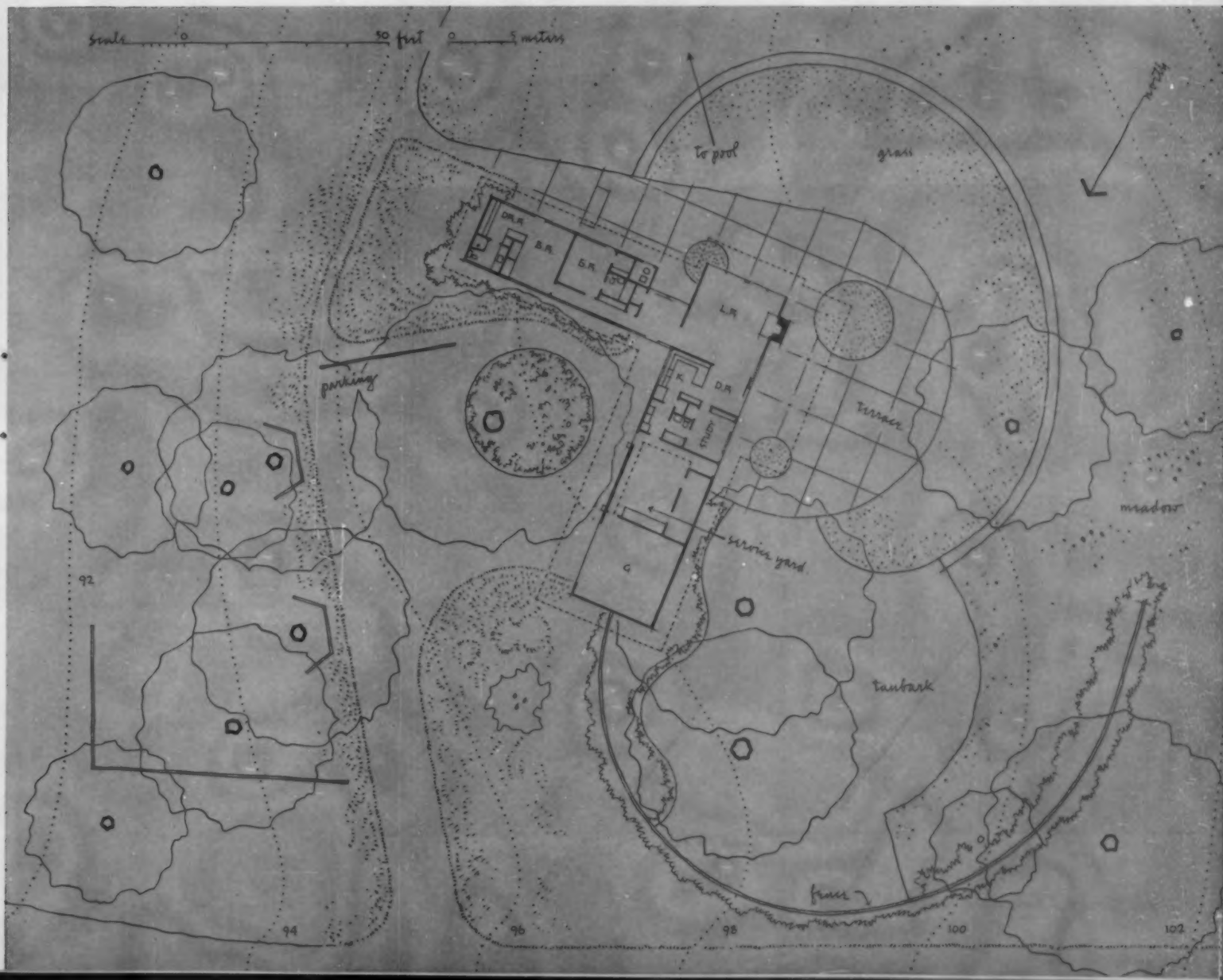
The home of the parents of the landscape architect's wife, this house was planned from inception with the closest co-operation between architects and landscape architect. Informal living and minimum maintenance were guiding considerations throughout. While the owner enjoys a certain amount of gardening, he did not wish this to become a burden. So the areas requiring upkeep were limited and the rest of the site was left in the natural state. His wife likes doing her own cooking, but she didn't want to be shut off from visitors while preparing meals; hence, the kitchen-dining-living room-porch arrangement. All principal living areas open to the south terrace, from which one looks down a slope to a swimming pool. The room and bath at the service end of the house may be used as a study, an extra guest room, or a maid's quarters.

A preference for natural materials is evident inside and out, with natural-finish redwood on the exterior; a fireplace and chimney of native stone; and most interior walls and ceilings of vertical-grained Douglas fir. All floors are concrete, troweled with color and hardener, and copper tubing in the floor slab serves the hot-water, radiant-panel heating system.

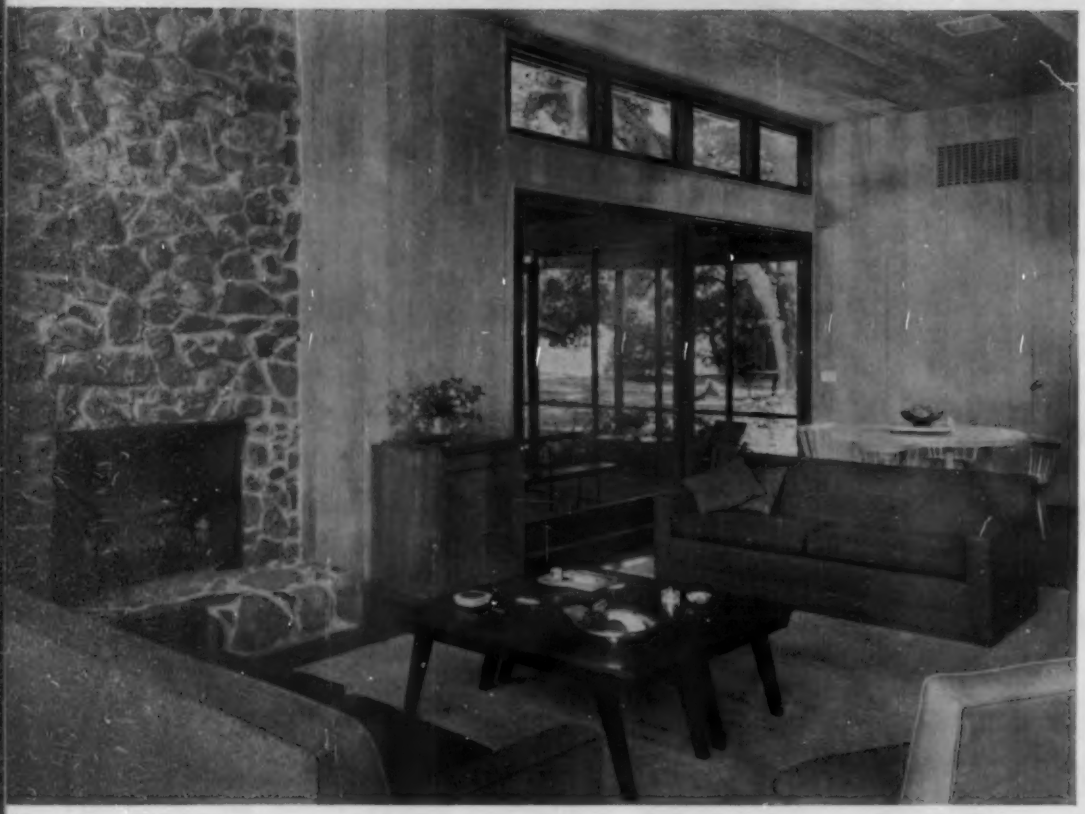
Speaking for the architectural firm, Donn Emmons tells us that they find the residential design field "most interesting and reasonably profitable. We like to do houses and do not plan to get out of this field." Actually, the firm is busy with a great variety of different types of buildings and "at present size, we could not operate solely on residential work. But we have had a steady flow of houses going through the office, and this work can be co-ordinated readily with the other jobs."

Immediate surroundings of the house, as at the terrace entrance (right), are either planted or paved; beyond these spaces are lawn or tanbark areas; and beyond these, undisturbed meadows.

Photos (except as noted): Morley Baer
Photos across page: Halberstadt



the private house: Woodside, California



Sliding doors open the living-dining area (left) *to a screened eating porch.*

A large dressing room, with many closets, is an extension of the owners' bedroom (below, left). *Glimpse of swimming pool in the background.*

Top to bottom: an exterior light fixture; a living-room wall fixture, designed by Mike Chepourkoff; and a door handle.

Akron, Ohio

architects | Robert A. Little & Associates

general contractor | Farinacci Construction Company

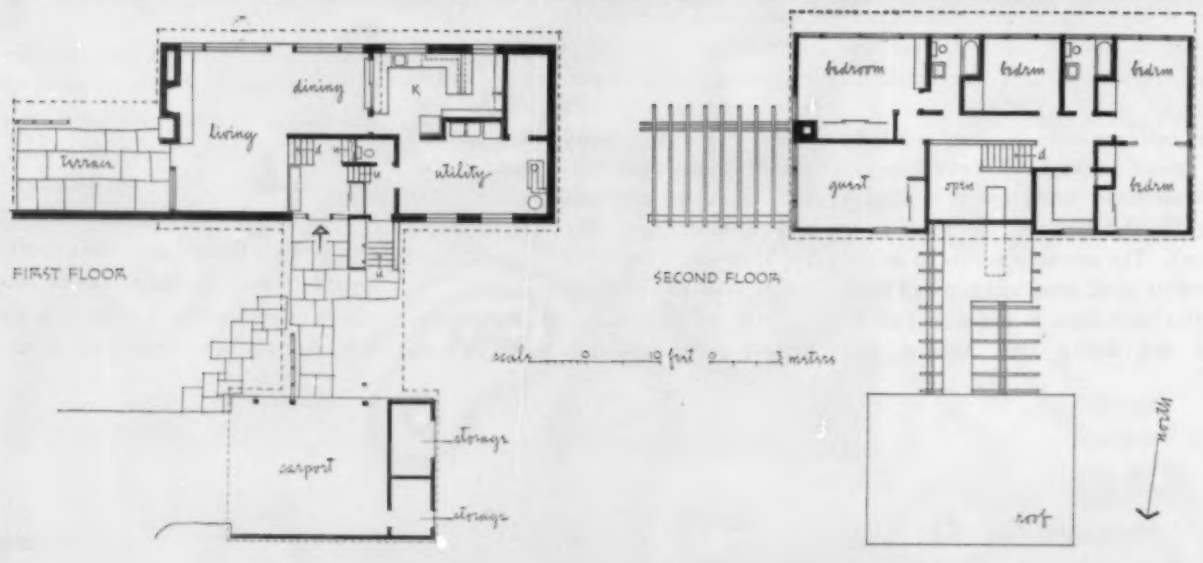
A wish for privacy and a desire to take advantage of the southern sun and view were prime factors behind the planning of this home for parents and three children. A further plan determinant was the wish to provide some physical separation between adults' and children's activities.

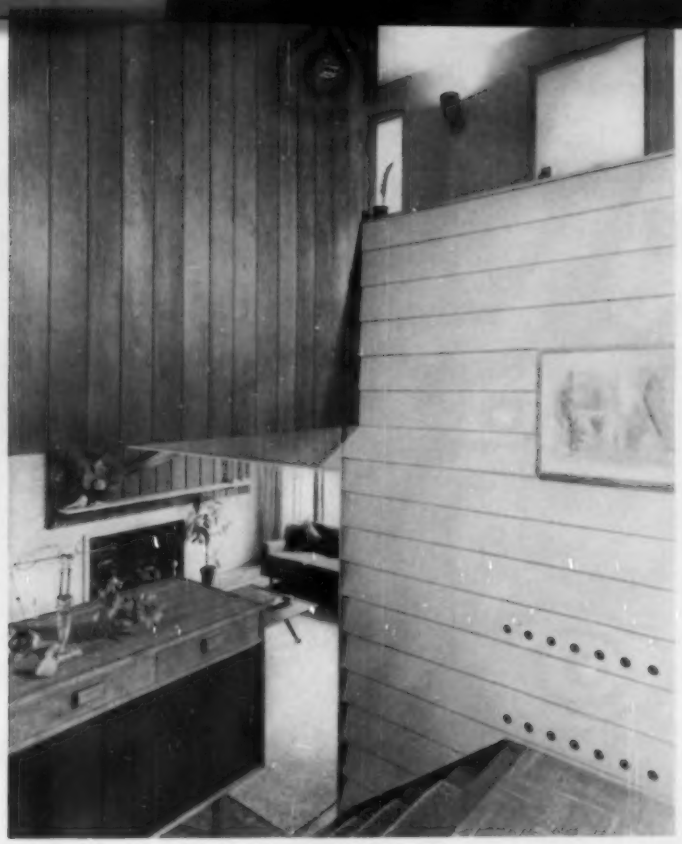
The entrance drive, carport, and front door are all on the north, away from the view; all main living space is aligned along the two levels of the south front (*above*). The entrance occurs at an intermediate level, from which a half flight of stairs leads down to the main (adult) living and dining area, kitchen, and utility room; and a half flight up to the bedroom level. Two of the children's bedrooms may be opened together, by means of a folding partition, to become a daytime activity room for the young.

Structural scheming is conventional, combining wood frame and concrete block; exterior wood surfaces are 1″ x 6″ V-groove redwood boarding; aluminum reflective insulation assists thermal control. Sash are aluminum, both awning and casement types. The house is heated by a gas-fired, cast-iron furnace, that serves a forced hot-water system.

Little & Associates, as does many another young firm, feels that it is none too easy to make expenses on custom-house design, but that doing houses is "a pleasure, human satisfaction, the doorway to the public, and perhaps to other more lucrative, nonresidential, commissions." Little explains that the cost of designing the individual house is justified in his practice whenever he can "bring a family a richer enjoyment of life; move ahead in our own design development by using custom houses as a Design Proving Ground; use this experience toward housing design for many people (the builder house); and produce something that may give esthetic satisfaction."

the private house: Akron, Ohio





From the entry (above), *one looks both up to the bedroom-level gallery and down to the family living room* (acrosspage).

Photos: Lionel Freedman

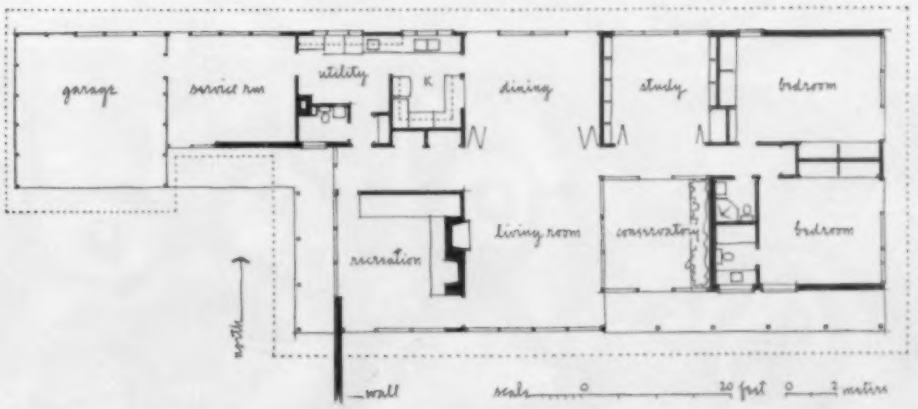
A pass-through serving counter occurs between the dining area (below) *and the well-equipped kitchen* (right). *All of these main rooms face south and enjoy the view down a slope to a wooden ravine.*

Bethesda, Maryland

architects-engineers	Charles M. Goodman Associates
general contractor	Gordon H. Sears

Garage, service room, and the extension of the garden wall (above) *form a delightful entrance court at the western end of the house. A corner of the main roof* (acrosspage) *shelters the entrance and protects the large, recreation room windows from the western sun.*

Photos: Robert C. Lautman



the private house: Bethesda, Maryland

The client, who was also general contractor for this house, required a two-car garage, service and utility rooms, kitchen, dining, and living rooms, two bedrooms, a study, and a recreation room. A simple rectangular structure houses the living quarters, with major rooms facing south onto a terrace. An entrance court is located at the western end of the house. The interior arrangement was greatly influenced by the interests of the owner's wife. An avid plant lover, her desire for interior greenery indicated a planting area as the focal point of the house, with the principal rooms centering around it. To achieve this objective, the architect has introduced a skylighted conservatory in the center of the house, with a planting strip running along the brick wall that forms one side of the room. Folding doors can be pushed aside to create one large open space in this central area. The recreation room, near these main rooms and opening into them, is semiprivate for card games, music, and intermittent guest use. Simple wood framing, in combination with old brick, has been used in the construction of this house. Footings are concrete, foundation walls of 8″ cinder blocks. The floor is a 4″ concrete slab surfaced for the most part with 9″ x 9″ oak parquet. Philadelphia Bluestone was used as flooring for the entrance hall and conservatory; kitchen and recreation room floors are asphalt tile. Conventional stud walls are faced with ¼″ oak plywood or plaster on the inside, and 1″ x 4″ T & G vertical siding on the exterior. Many of the floor-to-ceiling windows have fixed glass; others are steel casements. A large skylight over the conservatory is of polished wire-glass, fixed in a wood frame with copper clips and caulked. The simple hip roof is framed with 2″ x 10″ rafters, 16″ o.c., topped with 4-ply built-up roofing and bluestone-chip surfacing. The house is heated by hot water circulating through radiant-heating coils in floor and ceiling.

South terrace (above) *is shielded from the entrance court by an extension of the recreation room wall into the garden.*

View toward entrance hall (right) *shows study in foreground right, glassed-in conservatory in foreground left, and living room beyond.*

Conservatory, with view into study (acrosspage) *brings light, color, and a feeling of spaciousness into the interior of the house. From any part of the living room* (above *and* right) *distant view of landscape or near view of interior planting may be enjoyed. Living room and dining room* (right) *may be combined, or used independently when folding wood doors are closed.*

West Los Angeles, California

This serene and beautifully landscaped house was built for a family consisting of parents, a son, and a daughter. Sited on a lot 100 ft wide and 375 ft deep, it presents a relatively closed face to the street and a completely open side to the lawn and vistas to the rear.

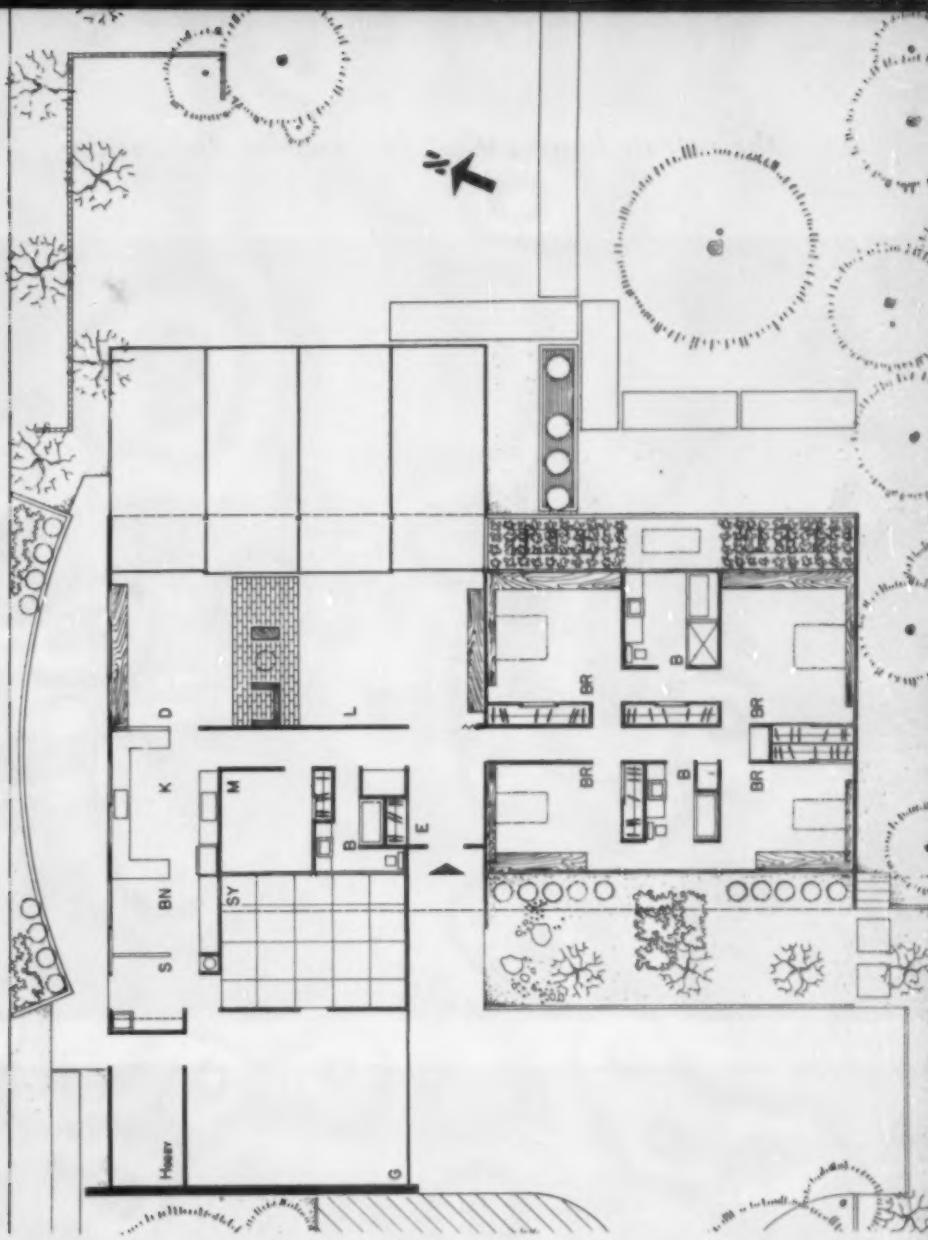
The plan is organized in three areas—the sleeping wing, with the four bedrooms sharing two baths; the living-dining space, which, with its garden loggia, forms one inter-flowing living area; and a work zone, including kitchen, breakfast nook, and utility spaces. Living and dining areas are separated by only the low, open fireplace of red brick; and four, 10-ft-wide, sliding glass panels can also open the space to the loggia (*see* SELECTED DETAIL, *page 120*).

Framing is of both wood and steel, erected on a concrete slab. Face-brick veneer, white-cedar siding, and plaster are all used for exterior wall surfacing (the designer feels that fewer materials would have produced a more effective result). Flooring consists of 9″ x 9″ oak blocks, stained and waxed. Sash are aluminum. The forced-air heating system has a gas-fired furnace.

About 70 percent of Ellwood's work (it's a three-man office, established in 1948) has been residential. Other categories include 15 percent apartment buildings and 15 percent commercial structures, remodeling, and miscellaneous. "There is little profit for us in residential design," he comments. In 1953, the total office gross went for ⅓ drafting; ⅓ overhead; and ⅓ profit.

He finds, "as things are today, that one must decide whether to do architecture or make money." Furthermore, he feels that "each new job must be a design improvement over any previous work. Actually, we have enough contracts signed to keep a half a dozen draftsmen busy, and we could sign enough to keep a dozen and a half busy." But he believes that the design standard can be maintained only by keeping the office small. He is researching the possibility of developing certain stock details and standardized members and parts that can reduce the cost of design—and the finished product.

designer	Craig Ellwood
landscape architects	Eckbo, Royston & Williams
structural engineers	Meckintosh & Mackintosh
general contractor	Henry Salzman



Alex dePaola

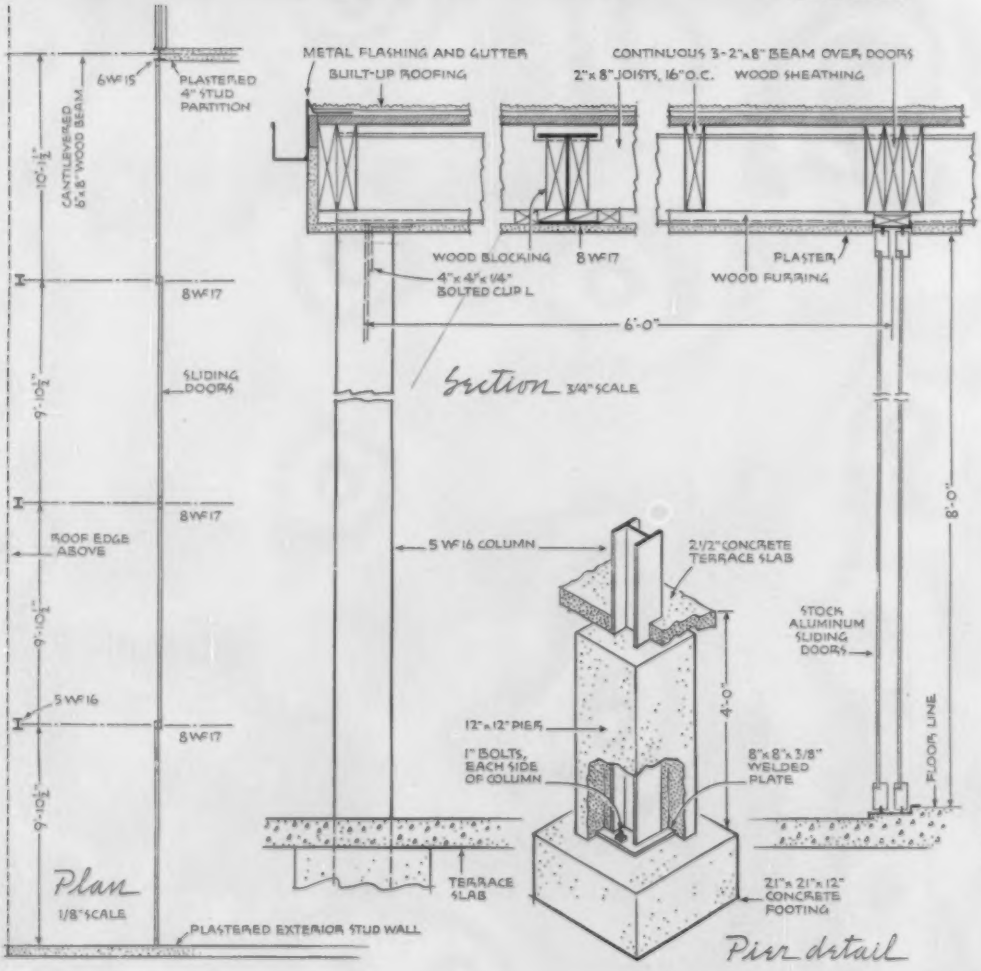
On the garden side, the joining of indoors and out is about as complete as one could devise. Wood-block flooring, and extension of hearth tile come up to the track of the full-height, aluminum windows; pebbled concrete, within wood screeds, surfaces the loggia floor and extends well beyond as a terrace, finally giving way to the greensward and garden elements. (See SELECTED DETAIL, page 120.)

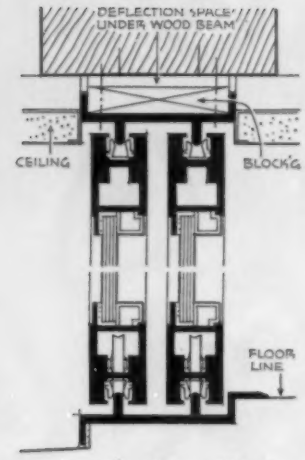
Photos (except as noted): Julius Shulman

p/a selected detail

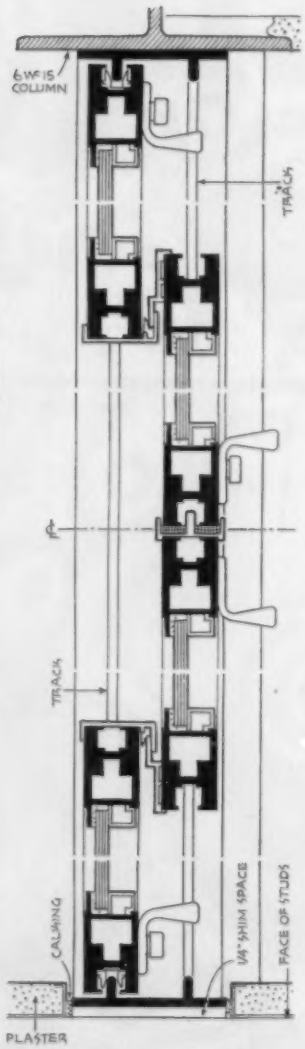
loggia window wall

JULIUS SHULMAN





Section thru Sliding Doors



Plan thru Sliding Doors
3" SCALE

HOUSE, West Los Angeles, Calif.
Craig Ellwood, Designer

A variety of built-in storage and counter units line two walls of each bedroom (left).

The kitchen (below left) *has three areas—food preparation (background); dining nook; and service (foreground), including an automatic washing machine.*

The larger of the two baths (below) *contains both a shower and a tub. Exceptional countertop space is provided.*

principles of solar house design

by Austin Whillier*

Designing a solar house requires close cooperation between the architect, the heating engineer, and the prospective occupant; the house finally decided upon will be the result of numerous compromises by all concerned. The divergent individual tastes and needs of the occupants and the varying extent to which costs become a limiting factor combine to make inappropriate any general reference to a particular house design as being "best."

Houses which are broadly classified as solar houses may vary from those with conventional heating facilities combined with large south-facing windows to those in which the complete heating load is carried entirely by the solar-heating system. This discussion will refer primarily to those houses in which a major portion of the heating requirement, both house heating and domestic hot-water supply, is carried by the solar-heating system.

Although it is only in the past 20 years or so that solar houses have come before the public eye, it has long been recognized that logical house design could improve both comfort and functionality of the resulting enclosure. In this connection, excerpts from Xenophon's *Memorabilia* (III, viii 8-14) regarding the teachings of Socrates (470-399 B.C.) are pertinent:

"Again his dictum about houses . . . was a lesson in the art of building houses as they ought to be.

"He approached the problem thus: 'When one means to have the right sort of house, must he contrive to make it as pleasant to live in and as useful as can be?'

"And this being admitted, 'Is it pleasant,' he asked, 'to have it cool in summer and warm in winter?'

"And when they agreed with this also, 'Now in houses with a south aspect, the sun's rays penetrate into the porticoes in winter, but in summer the path of the sun is right over our heads and above the roof, so that there is shade. If, then, this is the best arrangement, we should build the south side loftier to get the winter sun and the north side lower to keep out the cold winds. To put it shortly, the house in which the owner can find a pleasant retreat at all seasons and can store his belongings safely is presumably at once the pleasantest and the most beautiful.' "

The foregoing is clear evidence that solar heating is not a new field in house design. We are more than 2000 years behind the times!

The mere decision to build a solar house immediately imposes severe architectural limitations in that it is necessary to combine a large south-facing solar-energy collection area, with a living space, that satisfies the functional and comfort requirements for occupancy. The extent of solar heating will have a profound effect on the design; it is a relatively simple matter to design a house which has, say, up to half its annual heating load (house heat plus domestic hot water) supplied from the sun, but the problem rapidly increases in complexity as the fractional solar heating increases toward unit value. In any event, unless an extremely large and expensive storage system is provided, it is virtually impossible to heat a house completely with solar energy, in most localities. At least once during the lifetime of the equipment it is highly probable that inclement weather will occur, of such duration that the energy-storage capacity of the system becomes exhausted, and some make-up heat will be required. Storage of summer heat for winter use has been proved uneconomical; the load factor on that part of a storage system which exceeds one, two, or three days' capacity is too low.

The two primary components of the solar-heating system are the *solar collector*, which is mounted in an exposed position to intercept the sun's radiation, and the insulated *thermal-storage* unit in which some or all of the energy collected during the day is stored for use at night or on subsequent cloudy days. Also, because of the high probability of a period of insufficient sunshine during any one heating season, it is desirable if not essential to have some means of *auxiliary heating* with sufficient capacity to take care of the minimum comfort requirements during the most severe weather. Finally, there is the *domestic hot-water supply*, which in most cases may be integrated profitably into both the solar and the auxiliary-heating systems.

An important feature of any solar house is the *south window*. In addition to the many esthetic advantages and good daylighting of large windows, these south windows permit direct heating of the house during the day, heating which may be quite considerable even on cloudy days. Tight-fitting draperies are necessary both to reduce night-time heat loss through the windows, as well as to serve as a radiation barrier to improve comfort at night.

While the use of a *heat pump* for either primary or secondary heating in conjunction with the solar-heating system (and for summer cooling) offers many interesting possibilities, it is not considered here.

the solar collector

The collector is mounted in an exposed position and oriented to intercept the sun's radiant energy most advantageously (*Figure 1*). The south-facing roof of the house is one good location. For optimum performance the collector should be tilted toward the equator. The actual angle of tilt will depend upon that time of the year when the most energy is required. For year-round performance when the winter energy requirement is somewhat greater than that during the summer, a tilt of from 10 to 20 degrees greater than latitude would be close to optimum. At latitudes between 40 and 45 degrees, a collector tilted toward the equator at approximately 15 degrees greater than latitude would give about 15 percent more energy during the critical winter months than a south-facing vertical collector or

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a 45-degree tilt collector. Furthermore, a south-vertical collector may not collect sufficient energy in summer to heat the domestic water completely.

In localities where the water in the collector may freeze on cold winter nights, the collector must be drained whenever the sun is not shining. To avoid the use of expensive reversing valves, the storage tank must be located below the level of the collector and a pump used to circulate the water through the collector. The control must be such that the pump is switched on only when the collector is hotter by 5 F, or more, than the water in the storage tank. This, in effect, means when the sun is shining. At all other times, the water should drain from the collector through the pump back into the tank, and so eliminate the freezing danger.

The area of solar collector needed for each particular application and location is determined by use of calculating techniques reported elsewhere in the literature.[1,2,3,4] As a rough guide, *for domestic-water heating only*, the surface area of collector (with one glass cover plate) that is required per person living in the house varies from 10 sq ft in dry, low-rainfall regions to about 25 sq ft in localities such as New England.

The solar collector consists essentially of a flat copper or aluminum plate painted black on the side facing the sun to increase its absorption or solar radiation, and insulated on the reverse side to reduce the backward heat loss. Above and parallel to the blackened plate are mounted one or more air-spaced glass

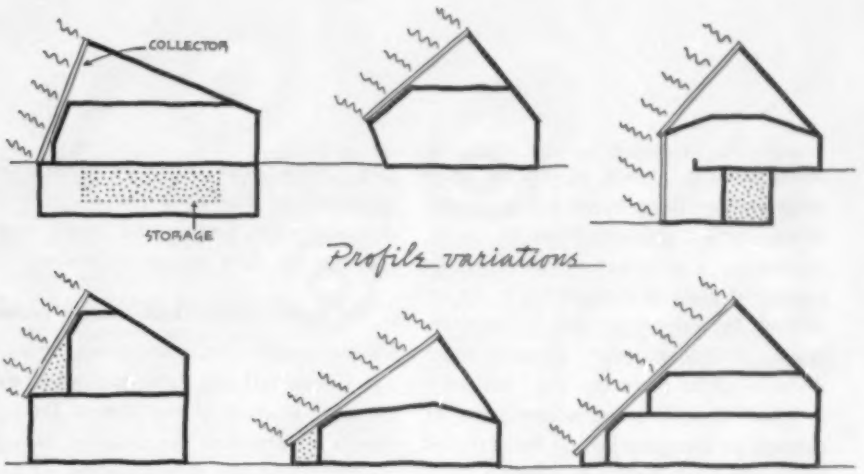


fig. 1

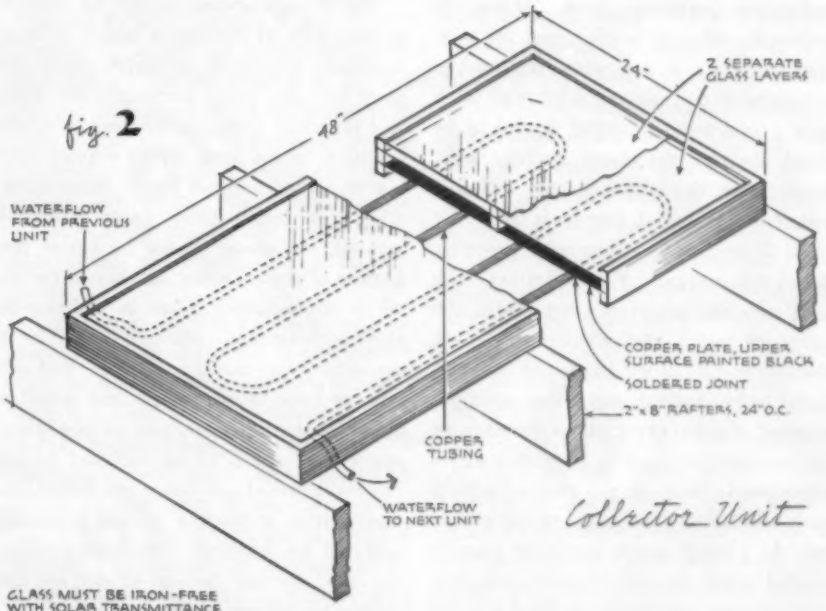
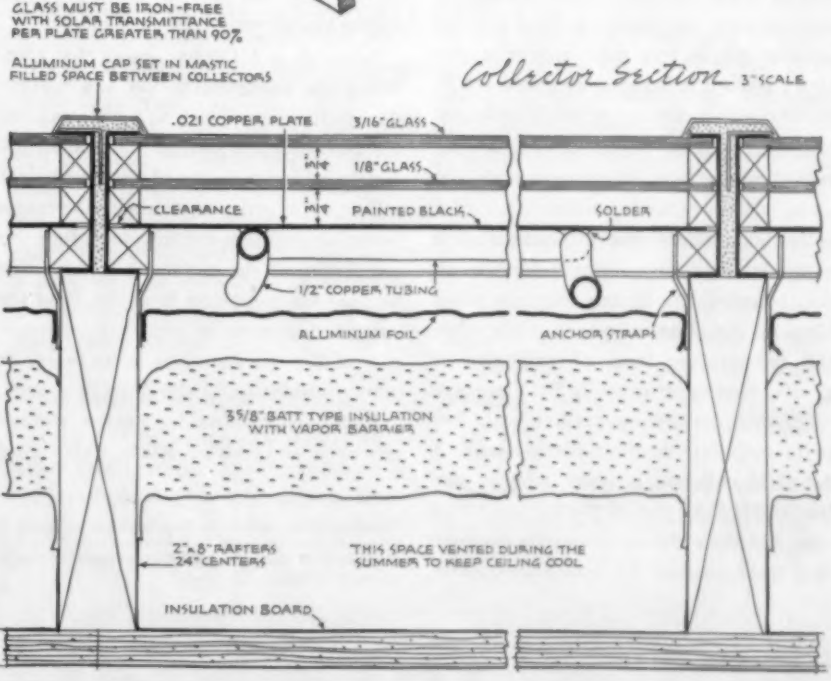


fig. 2


GLASS MUST BE IRON-FREE WITH SOLAR TRANSMITTANCE PER PLATE GREATER THAN 90%
ALUMINUM CAP SET IN MASTIC FILLED SPACE BETWEEN COLLECTORS
Collector Section 3" SCALE
.021 COPPER PLATE
3/16" GLASS
1/8" GLASS
CLEARANCE
PAINTED BLACK
SOLDER
1/2" COPPER TUBING
ALUMINUM FOIL
ANCHOR STRAPS
3 5/8" BATT TYPE INSULATION WITH VAPOR BARRIER
2"x8" RAFTERS 24" CENTERS
THIS SPACE VENTED DURING THE SUMMER TO KEEP CEILING COOL
INSULATION BOARD

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[1] A. Whillier. *Solar Energy Collection and Its Utilization for House Heating*. Sc.D. Thesis (1953). Department of Mechanical Engineering. Massachusetts Institute of Technology. Cambridge, Mass.

[2] H. C. Hottel and B. B. Woertz. "The Performance of Flat-Plate Solar-Heat Collectors." Transaction of American Society of Mechanical Engineers, Vol. 64 (1942), pp. 91-104.

[3] H. C. Hottel. *Performance of Flat-Plate Solar-Energy Collectors*. Proceedings of Course-Symposium on Space Heating with Solar Energy, held at MIT, August 21-26, 1950.

[4] A. Whillier. "The Utilization of Solar Energy in South Africa." South African Institute of Mechanical Engineers, Vol. 22, No. 9 (April 1953), pp. 261-266.

plates about ¾" apart. (Glass transmits short-wave solar radiation but is opaque to long-wave reradiation from the collector plate.) The energy absorbed by the blackened plate is transported to the insulated thermal-storage unit by the circulation of either water through tubes soldered to the plate (on 5½" centers if a 0.021" copper plate is used) or air through an air space behind the plate but inside the back insulation (*Figure 2*).

There are no hard and fast rules for choosing between air and water as the energy-transportation fluid. Water is preferable when it is also used for storage, while air is best when the storage system is of the crushed solid type, such as a gravel bed. However, it should be noted that at the same average fluid temperature, the efficiency of a collector with air removal of energy is generally 15 to 25 percent less than with water removal of energy.[1] For collectors with both one- and two-glass cover plates, the optimum water and air-flow rates are about 6 and 25 lb per hr per sq ft of collector area, respectively. The optimum number of glass cover plates depends on the temperature level of operation above atmospheric, and on the cost of adding each additional glass plate to the collector. As a rough guide, one cover glass is needed when the difference in temperature between the incoming fluid and the outdoor air is less than approximately 60 F; when it is between 60 F and 140 F, approximately, the use of two is optimum.

A word may be pertinent, at this time, regarding the use of concentrating devices, such as reflecting mirrors, for solar collection. The primary function of a concentrating-type solar collector is to attain temperatures higher than are possible with flat-plate collectors. Only when the temperature level of collection is greater than approximately 300 F are concentrating devices competitive with flat-plate collectors in their performance. A flat-plate collector is much simpler and less costly than one of the concentrating type and, in addition, it may be mounted in a fixed position for year-round operation. Since solar collectors operate at temperatures less than 150 F for both domestic-water heating and house heating, the flat-plate type is prescribed.

the thermal-energy (heat) storage system

Problems that arise in designing the storage system fall into three categories: the physical location of the system for optimum performance, the choice of storage medium, and the determination of the optimum size of storage needed for the given application.

The storage system should be located in that part of the house which is least expensive to provide, or which cannot be used for any other purpose. The attic and basement immediately come to mind. Location in the attic would require special structural support for the large mass. Also, if a self-draining water system is wanted, the storage must be below the bottom of the collector, and hence the attic is not suitable. Since in addition to the solar-storage system there is a domestic-water tank, a furnace, and oil-storage tank, some pumps, and possibly a fan, heat exchanger, and air-conditioning system—each to be enclosed within the house envelope—there are few situations where at least a partial basement will not be justified. Other suggestions for the physical layout of the storage system are shown (*Figures 1 and 3*).

Research at MIT[5] has shown that combining the energy-collection and energy-storage functions (such as by placing the containers for the storage material immediately behind the glass of a south-vertical collector) in order to eliminate the transportation problem and also to reduce the complexity of the system, is not feasible because the night-time heat loss from the combined system is excessive. Separation of the two functions is necessary to permit insulation of the storage system.

Materials suitable for energy storage are water and crushed solids, which store the energy as sensible heat characterized by a change in temperature, and certain chemicals which undergo a change of phase permitting storage of energy as latent heat (heat of fusion). Reliability and cost form the basis for selection of any particular material. Reliability is an important consideration with phase-change materials because super-cooling and stratification, which are not always consistent in their occurrence, may at times markedly influence the performance.[6] Cost should be evaluated on the basis of volume and should include allowance for space occupied in the house, for the cost of the material itself, and for the cost of the necessary containers and fittings. In addition, it is desirable that the energy be stored at the lowest possible temperature because of the strong dependence of collector efficiency on the temperature level of operation.

Of the sensible-heat type materials, water is certainly the best on a volume basis.[1] However, when costs are taken into account, the picture will be influenced by the cost of the materials themselves, as well as by the fact that water requires an expensive retaining tank while the others may be housed in relatively cheap enclosures. Although it is difficult to ascertain accurate figures, water probably is superior to the others on the basis of cost as well as of volume. Of the phase-change or heat-of-fusion type storage materials (such as Glauber's salt, $Na_2SO_4 \cdot 10H_2O$, and dibasic sodium phosphate, $Na_2HPO_4 \cdot 12H_2O$) *none* has yet been found that is reliable, relatively cheap, and sufficiently better than water in its thermal performance to warrant its use in place of water or crushed rock.[1, 7] For example, the above-mentioned salts would be suitable only in mechanically stirred systems (to ensure uniform composition at all times), and provided that supercooling could be prevented. Because of the potential superiority of heat-

[5] A. G. H. Dietz and E. L. Czapek. "Solar Heating of Houses by Vertical South-Wall Storage Panels." American Society of Heating and Ventilating Engineers, Transaction 56 (1950).

[6] A. Whillier. *Energy Storage in Cyclical Heating-Cooling Operations.* S. M. Thesis (1950). Department of Mechanical Engineering, MIT.

[7] "Chemical Heat Storage for Heat Pumps." *Edison Electric Institute Bulletin* (May 1952), pp. 168-172.

of-fusion type materials over sensible-heat materials[8,9] (primarily because operation of the solar collector is at a lower temperature and hence at a greater efficiency, and to a lesser extent because of the reduction of space needed for the storage system), much research is currently being devoted to understanding the phase-change process more fully and to finding new phase-change materials.

Accordingly, water (or, for a system with air removal of energy from the collector, crushed rock) is recommended as probably the most suitable storage material in solar-heating applications at the present time.

The *size* of the storage system lies for most purposes within the range of 5 to 50 lb of water (or its equivalent) per sq ft of collector, with about 20 lb being close to the optimum for house heating. A method for accurately determining the optimum size of storage for any given application using day-to-day temperature and solar-radiation data, and taking account of the unit cost of the storage system has been given in the literature.[1,9]

heating the living space

The primary factor which dictates the choice of the house-heating system is the desire to operate the solar collector at the lowest possible temperature. This low-temperature characteristic of solar heating therefore limits the choice to those systems with large areas for heat transfer—namely, forced-air and panel systems. In the former the large area is provided within the storage unit in a crushed-rock system or in a heat exchanger in a water system, while in the latter it is that of the panel itself.

Panel systems have a high time lag when the source temperature is low, their installation cost is somewhat higher than that of forced-air systems, and condensation seriously restricts their use for summer cooling. Forced-air systems on the other hand have a low time lag, may be used with any kind of storage system, and are ideally suited to summer cooling or even air conditioning. In general, the forced-air system is preferable for most solar house-heating applications.

auxiliary heat supply

The choice of auxiliary-heating system depends not only on the relative prices of different fuels, but also on the expected quantity of heat to be supplied each year. For example, if the quantity of auxiliary heat is small, it may be economical to install an inexpensive, low-efficiency oil burner instead of a more efficient and hence more expensive unit. Only if the amount of auxiliary heat is *extremely small* will direct electric heating be economical. In this case the low initial cost of the electric heater more than offsets the high unit cost of electricity.

The size of auxiliary heater may be somewhat reduced if used in conjunction with a small storage system separate from the main solar-heat storage. This storage system would not only smooth off the peak-demand rates but would, in addition, prevent frequent switching on and off of the heater during periods of low demand. Also, time lag between the instant that heat is called for and the time when it is delivered would be eliminated—an important factor in low-temperature systems.

The method of introducing the auxiliary heat into the house requires careful attention. Under no circumstances should the auxiliary unit be used to heat the solar-storage system. Rather, the auxiliary heat should be introduced directly into the house using the existing solar-heat distributing system.

the domestic hot water

As opposed to the seasonal nature of the house-heat load, the energy required for the domestic hot-water supply is almost constant year-round. Also, whereas the annual energy usage for house heating is generally two or three times the annual energy required for the hot water, the *peak-demand rates* for the two are of the same order of magnitude, yet these peak demands seldom occur simultaneously. This suggests the possibility of using a single auxiliary heater for both purposes, thus avoiding duplication of equipment.

summer cooling and air conditioning

The use of summer solar heat for operation of absorption-type refrigerators or for reactivation of adsorption-type dehumidifiers is certainly possible, yet not even remotely competitive with mechanical refrigeration in cost.[10] Other ways of using the system (which is installed primarily for winter heating) in summer are worth consideration. They involve the use of the large solar-storage system for *regenerative* cooling. Again, two levels of use are possible.

In the first, cold night-time air is used to reduce the temperature of the large storage mass, which then serves as a heat sink for the house during the days that follow. As would be expected, the cooling effect is not very large and in any event it is not reliable. In the second, the large storage system is used regeneratively in conjunction with a small mechanical-refrigeration unit to provide complete summer air conditioning. The merit of this arrangement lies in the fact that a ¾-ton compressor may be used in place of a conventional 3-ton unit to give complete air conditioning; the ¾-ton unit would run twenty-four hours a day, cooling the large storage system when no house cooling is needed.

an integrated solar-heating summer-cooling system

A schematic layout for a solar-heated, summer air-conditioned house is shown *(Figure 3)*. The following features should be noted:

1. The large tank is solar heated in

[8] M. and Raymond E. Telkes. "Storing Solar Heat in Chemicals—a Report on the Dover House." *Heating and Ventilating*, Vol. 46, No. 11 (November 1949), pp. 80-86.

[9] H. C. Hottel and A. Whillier. *The Storage of Solar Energy in House-Heating Applications*. To be published.

[10] G. O. G. Löf. *House Heating and Cooling with Solar Energy*. Contribution to Solar Energy Research, based on a Symposium on the Utilization of Solar Energy held at Madison, Wisconsin, September 12-14, 1953. University of Wisconsin Press.

In winter, the house thermostat energizes the solenoid valve to connect the small (furnace-heated) tank into the house-heating system only if solar heat from the large tank is insufficient to maintain comfort.

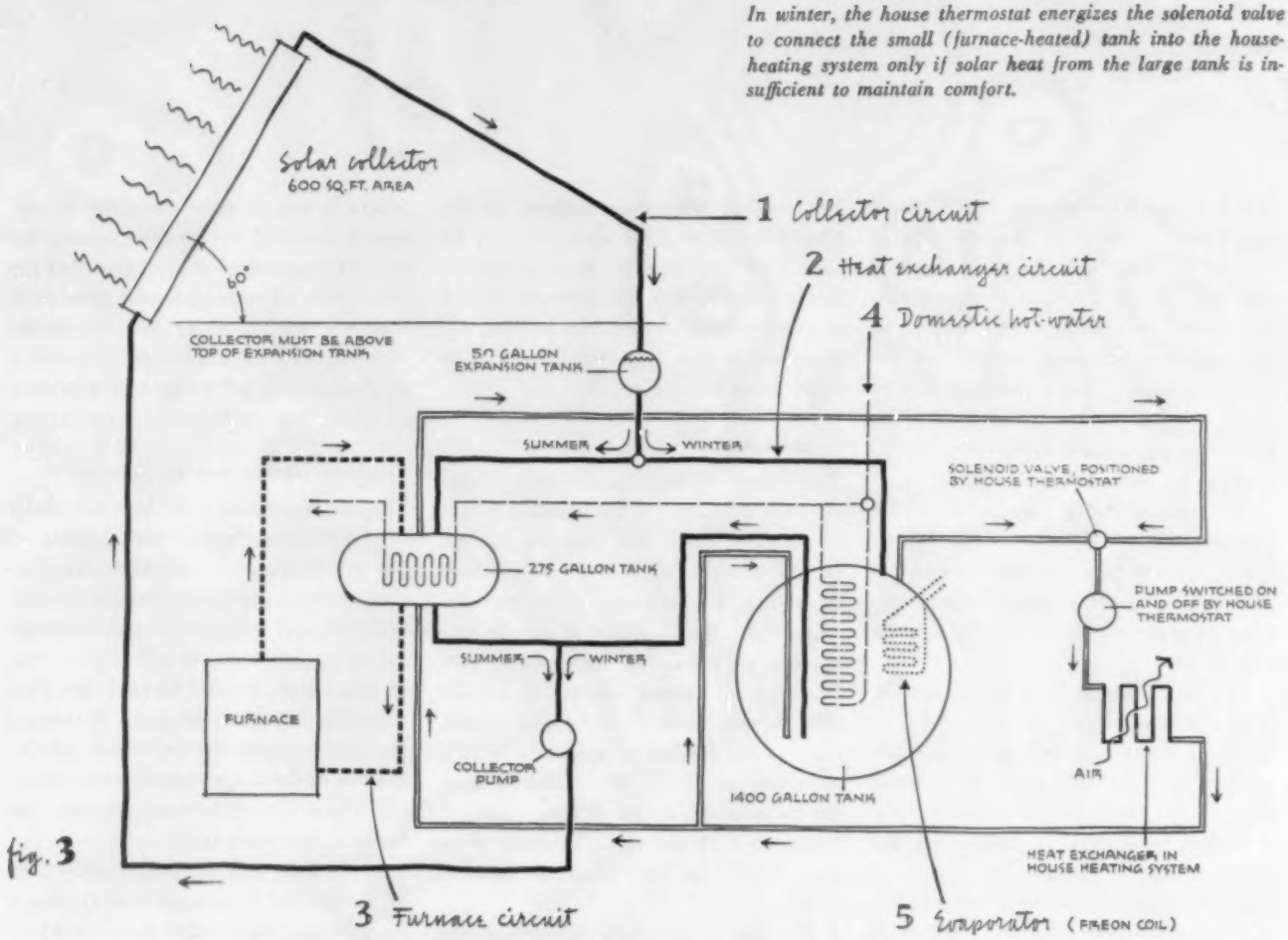


fig. 3

1—Collector circuit; pump on when sun shines.
2—Heat-exchanger circuit; pump and solenoid valve controlled by house thermostat.
3—Furnace circuit; flow by natural circulation whenever furnace is on. In winter furnace keeps 275-gal tank between 135 F and 150 F, in summer it is turned off.
4—Domestic hot-water circuit; the heating coil in the large tank is by-passed during the summer.
5—Evaporator (Freon) coil of the ¾-ton refrigerator; used in summer only.

winter and mechanically cooled in summer. The small tank is heated by the furnace in winter and is solar heated in summer.

2. In winter both tanks are used for heating; in summer the large tank is used for cooling and the small tank for heating.

3. In winter the domestic water is preheated in the large tank before passing through the small tank for final heating. In summer it is by-passed around the (mechanically cooled) large tank and is heated only in the small, solar-heated tank.

4. The heat exchanger and pump are used for solar heating, auxiliary heating, and summer cooling with complete automatic control.

5. The switch-over from winter to summer and back again each year requires manual switching of only two water valves (in the collector circuit and in the domestic-water circuit); all electrical controls may be made automatic.

economic considerations

Although this article is not intended to discuss the economics of solar-house heating, a word on costs may be pertinent. Solar heating requires an initial investment over and above the usual house cost of between $3 and $5 per sq ft of installed collector surface, including the cost of the insulated storage system and of the controls. The return on this investment is in the form of an annual saving in fuel and of improved comfort in the house. Whether or not a solar-heating system is a sound economical investment thus depends on the value of the annual heat collected, which in turn depends on the climate, the local price of fuel, and upon the value of the comfort realized—a value assessed only by the occupants themselves. Here the question arises as to whether it is really necessary that solar heating should be economical, or whether its many advantages more than outweigh the *small* extra cost that is inevitable in northern areas of the United States at present-day fuel prices.

acknowledgement

The author would like to acknowledge suggestions from the MIT Solar Space-Heating Committee, Professors L. B. Anderson (Chairman), A. G. H. Dietz, A. L. Hesselschwerdt, Jr., and H. C. Hottel, as well as permission to use unpublished memoranda in the Committee files.

research village: two houses

Coddington-Simms team

Now on view at Barrington, Illinois (near Chicago), are six architect-builder houses comprising the "Research Village Project" which has been sponsored by the United States Gypsum Company. Primary objective of the project was to team up outstanding talent in the architectural and building professions to (1) contribute new design and construction ideas, particularly for the project home builder, (2) create new uses for building materials, and (3) provide more livability, comfort, safety, and value for the homeowner. The sponsor's building materials were offered for study but were to be specified only if they best suited the requirements of the architect's design. The NAHB and an architectural advisory board composed of three members of the Chicago Chapter AIA collaborated with U.S.G. in selecting six architect-builder teams to meet the challenge of these objectives.

Last year, models and plans developed for the "Research Village" made up one of the most talked about exhibits at the 10th Annual Convention and Exposition of the NAHB in Chicago (*March 1954 P/A*). This year, literally thousands of delegates and visitors to the annual meeting took the better part of a day's time to make the bus trip to Barrington and back in order to inspect the completed model community. What they saw were six houses, very different in plan and structural concept yet presenting a handsome group appearance, built on an uneven, wooded tract of an attractive suburb.

Two of these houses are presented here. The first was designed by Architect Gilbert Coddington, of Brooks & Coddington, Columbus, Ohio, working with teammate builder Alex Simms, Dayton, Ohio; the second was designed by Architect Francis D. Lethbridge, of Keyes, Smith, Satterlee & Lethbridge, Washington, D.C., working with teammate builder Eli Luria, Arlington, Virginia. All homes were constructed by the Maxon Construction Company, Barrington.

Having been given a sloping plot, Coddington wished to take maximum advantage of the terrain by designing a split-level house—a plan that he believes will provide maximum economy in both space and use of materials. The principal part of the house, situated four ft above entrance level, consists of living, dining, kitchen, bath, and bedroom areas. Down

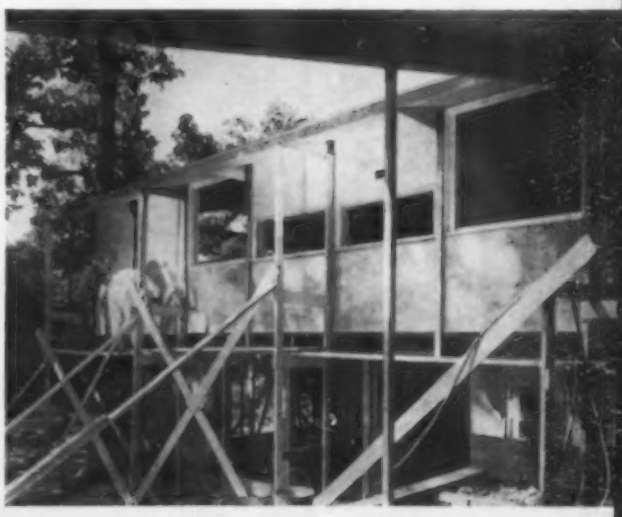
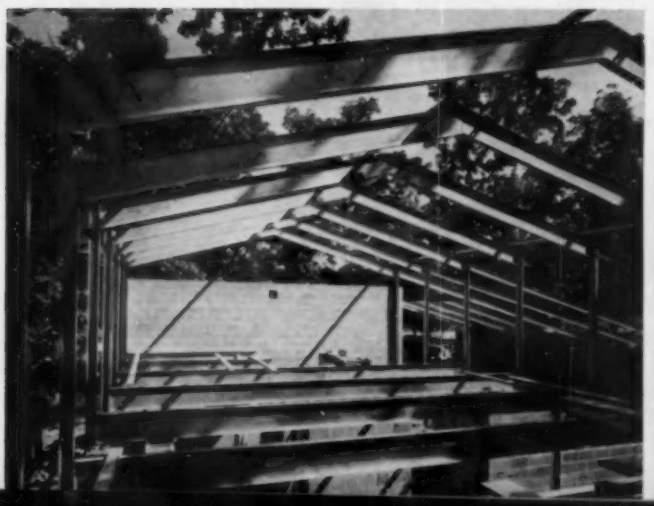


Figure 1—welded, rigid-steel bents, spaced 5' on center, frame upper level of house (below left).

Figure 2—open-web steel studs used for nonbearing interior partitions and exterior curtain wall at upper level (below right).

Figure 3—exterior surface, between I-beam mullions, is stucco over metal lath (right). All Photos: Hedrich-Blessing



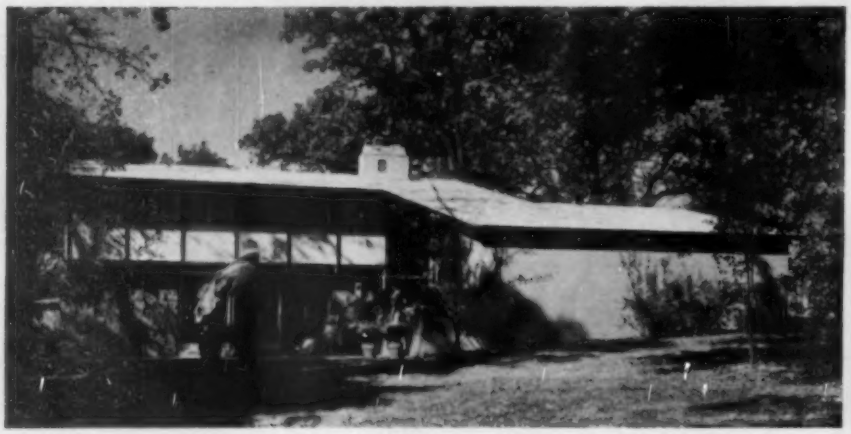
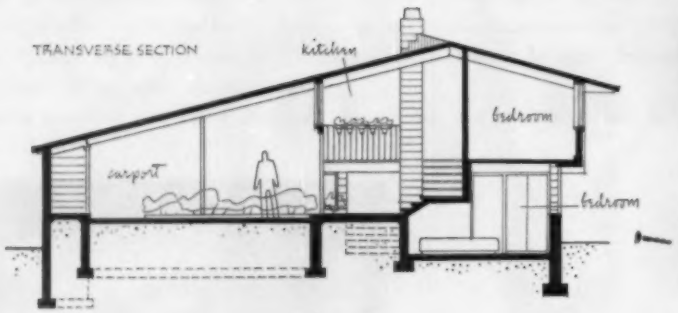
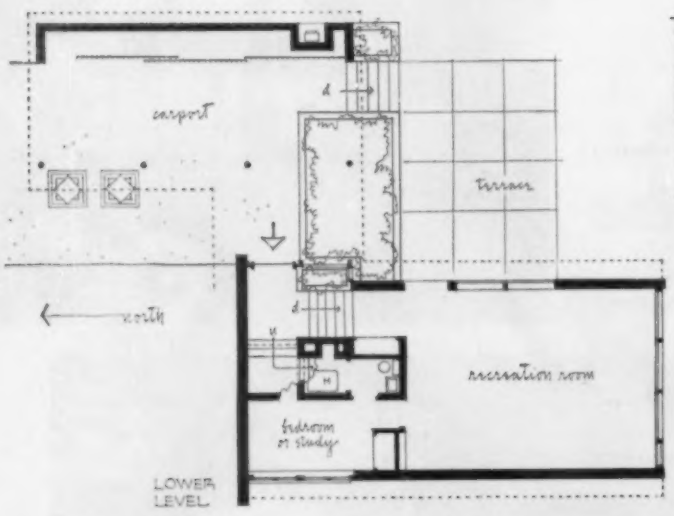
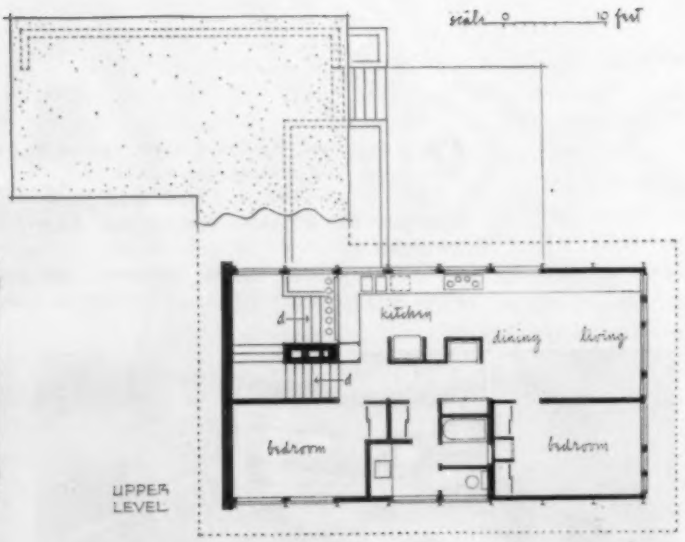


Figure 4—east elevation (left) *shows compactness of design; lower level: 826 sq ft; upper level: 943 sq ft.*

Figure 5—view from street shows lightweight concrete-block masonry (below). *Pattern produced by laying alternate blocks endwise so that tongue of control joint is exposed.*







six risers from the entrance are the recreation (adjacent to and level with outside terrace), study, lavatory, and utility rooms. A covered walkway, carport, and enclosed tool-storage area are at entrance level (*plans acrosspage*).

Lightweight, rigid-steel bents are the principal framing members for the upper level. This welded framing is made up of 10 Jr 9 rafters, 4 I 9.5 mullions, and 12 Jr 11.8 floor joists (*Figure 1 and* SELECTED DETAIL *next page*). The bents and floor beams, spaced five ft on center, support a roof-deck and floor construction of metal-edge gypsum planks tack welded in place. This entire framework rests on lightweight concrete-block masonry. Such a combination of steel framing and fireproof gypsum, along with masonry exterior walls, make this house practically incombustible.

This construction method suggested the use of an open-web, steel-stud system for both nonbearing exterior curtain walls and interior partitions (*Figures 2 and 3*). This system, more commonly specified for Class A buildings, has been employed at Research Village with much success. Although they are reported to cost no more than wood, these steel studs are dimensionally stable, incombustible, easily cut to size, and rapidly erected. Upper-level partitions which possess 40-db sound-transmission ratings are surfaced with metal lath and plaster. Insulating gypsum wallboard and plaster form the inside surfaces of the exterior curtain walls while the exterior finish is stucco applied over self-furring metal lath and fiber-board sheathing (*Figure 3*).

Viewed from the street (*Figure 5*), the storage-wall enclosure running the full length of the carport makes a novel use of metal roof decking—as sliding doors. Highly practical for outside service doors, this ribbed decking is framed by 2 x 2 x ¼ structural-steel angles on all four sides.

Baseboard convectors heat the house.

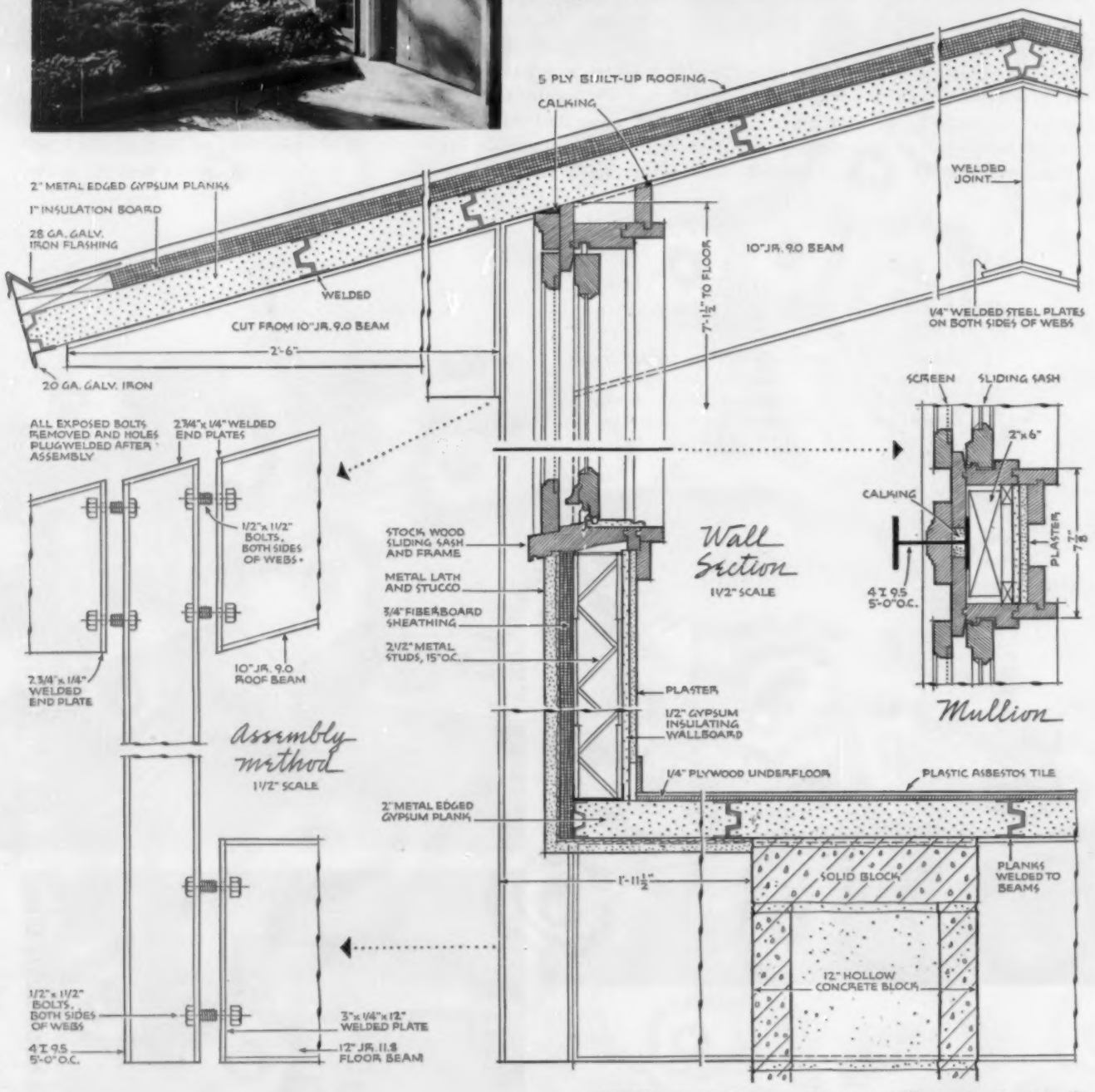
Figures 6 and 7—outside terrace and recreation room are at same level (left acrosspage and below).

Figures 8 and 9—living room-bedroom partition is topped by sliding-glass panels (below right) *and end of kitchen allows control of entrance by mother* (right).

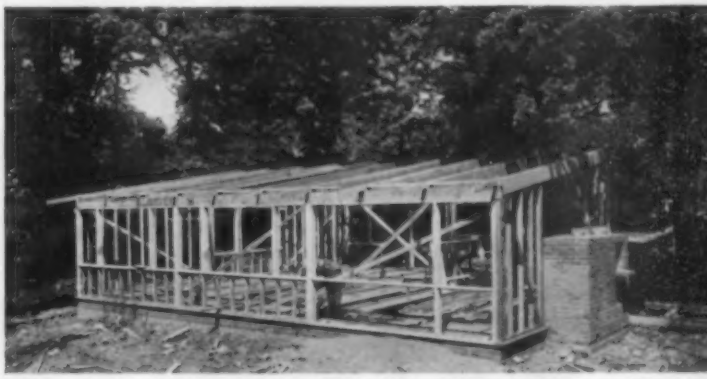
p/a selected detail

window-wall section

HEDRICH-BLESSING



HOUSE, U. S. Gypsum Research Village, Barrington, Ill.
Brooks & Coddington, Architects



Lethbridge-Luria team

Figure 1—careful positioning of house on lot enabled builder to save most of the trees (upper right).

Figures 2, 3, 4, and 5—shop-fabricated, open-web studs accommodate pipes, conduits, and other services without notching (above left). *New for interior partitions are mill-laminated gypsum-core units* (above right).

Figure 6—core units are surfaced with regular gypsum wallboard applied with special adhesive (right).

While planning their house, one of the Lethbridge-Luria design objectives was to devise a home that would meet the needs of a family with children—a house that would provide a measure of privacy by separating the activities of various members of the family group. Another design objective was to develop an economical plan that could be expanded or reduced in size—keeping all of the rooms in proper proportion to one another. Used as a prototype plan, this scheme would allow the operative builder an opportunity to construct houses of two, three, or four bedrooms using the same basic construction system and utility core. Of the six possible variations, the plan for this house (*shown next page*) represents one of the larger units.

To help accomplish the foregoing, Lethbridge designed a wood-frame post-and-lintel construction system (*Figure 1*) with a beam and tongue-and-groove plank roof—a system which permitted the use of both hollow and solid nonbearing dry-wall interior partitions. Posts are rabbetted to receive fixed-glass, metal window units, or solid panels; lintels are continuous for the length of the house. Roof beams are built up of 2 x 10's with 2 x 8 center gussets and 2 x 4 outriggers sandwiched between them. The structural design of the roof was determined in accordance with the Chicago suburban code which requires a design live load of 20 psf and a dead load of 15.

With the exception of the kitchen sink, all plumbing is concentrated in one wall. Open-web steel studs in this nonbearing wall simplify cross connections and accommodate pipes, conduits, ducts, and other services without notching or drilling (*Figure 2*). Although various surface materials could have been applied to the steel studs, gypsum panels were anchored in place with special locking clips. (*Figure 3*). Over this base layer of gypsum board, 4′ x 8′ panels of ⅜″ thick gypsum wallboard were applied with the aid of adhesives (*Figure 6*). To complete the hollow-partition system, joints were covered with tape.

The sandwiched roof-beam design permitted easy erection of 1-⅛″ mill-laminated gypsum-core units which are also easily cut by sawing (*Figures 4 and 5*); accurate fitting around service outlets

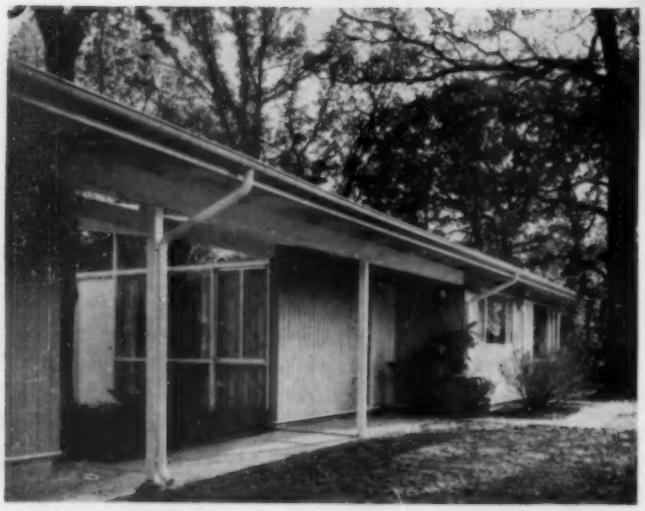


Figure 7—east elevation shows relationship of house, terrace (with barbecue pit), and carport (above left).

Figure 8—covered walk links carport with kitchen entrances to house (left).

Figure 9—interior view of living-dining area (above).

further speeds erection time. To these core panels, regular 3/8" gypsum-wallboard panels were applied and held in place by a layer of special adhesive (*Figure 6*). Joints between these face layers are also finished by taping.

The east elevation clearly illustrates the extensive use of glass (*Figure 7*). The terrace has a barbecue pit which, indoors, is combined with a living-room fireplace. A low-pitched, built-up roof enhances the spread of this house even though it occupies an area of only 1190 sq ft. One of its most practical features is the covered walk which extends the full length of the carport to the front of the house and to the adult kitchen entrance (*Figure 8*). It provides an essential element to the design of the house in that it not only affords weather protection from car to doorways, but also it integrates the carport with the house. At the far right is the other kitchen entrance—for youngsters—which allows the mother traffic control.

Warm-air perimeter heating was selected as being most practical considering the design of the home and the possibility of year-round air conditioning.

stainless-steel skin for largest metal-clad building

Designers of the Chrysler Building's spiked helmet, completed in New York in 1928, were the first to make major use of stainless steel for the exterior of a skyscraper. Today, directly across the street, 750,000 lb of the same material are being used for the exterior sheathing of the world's sixth largest office structure—the new Socony-Vacuum Building. Although aluminum has become increasingly evident in tall office-building construction throughout the country, this is the first major use of stainless steel in this type of structure since the designs for the Gateway Center and Lever House projects in the early 1950s. Because of the industry's avowed desire to participate in the trend toward metal-clad buildings and because of the current availability of Type 302 stainless steel (formerly restricted for architectural construction), this material will undoubtedly be used in greater abundance during the coming years.

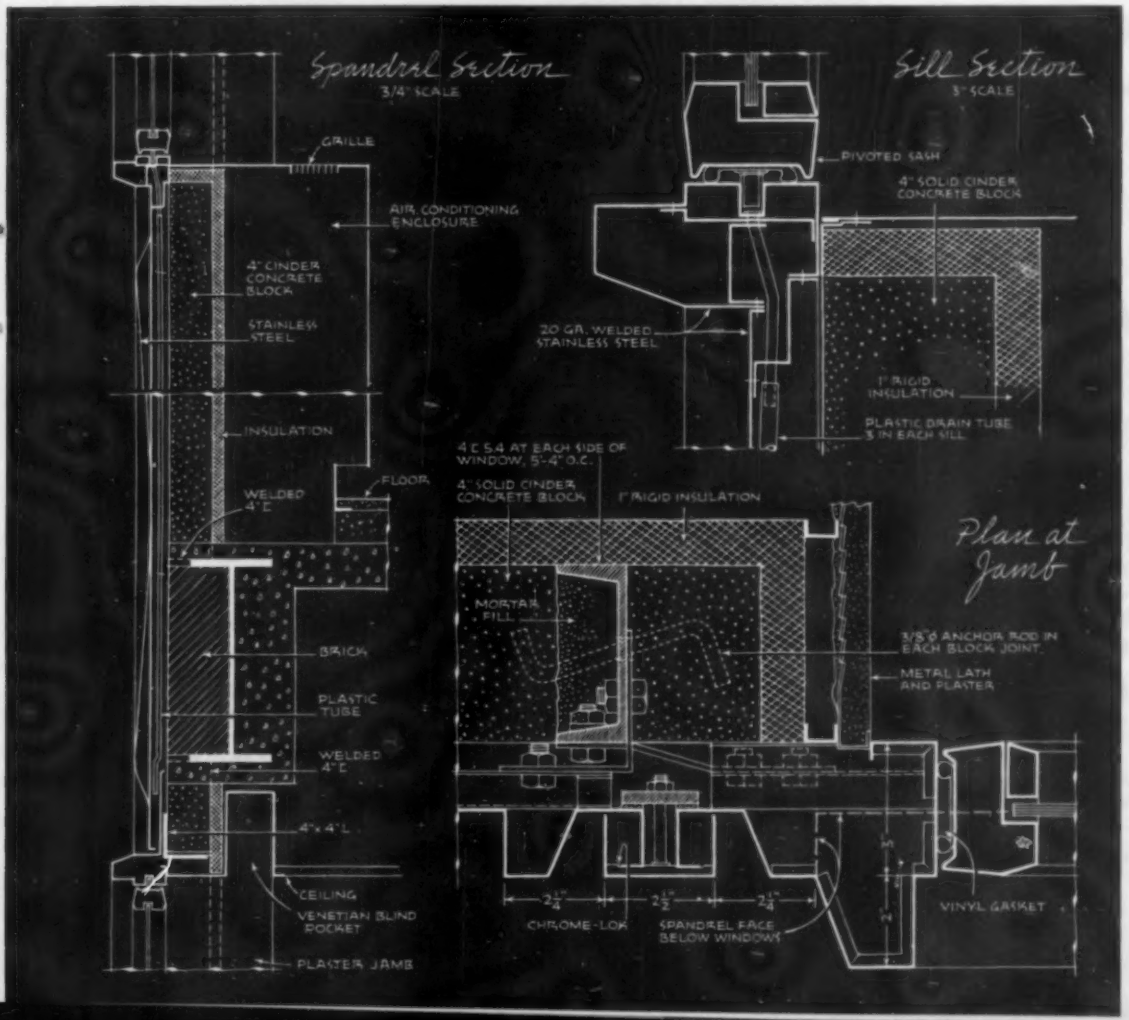
Type 302 stainless steel, .037″ thick and containing from 17 to 19 percent chromium, 8 to 10 percent nickel, 0.2 percent manganese, and small amounts of silicon, phosphorus, and sulphur, will be applied to the Socony-Vacuum framing in the form of pier covers, spandrels, windows, frames, mullions, and louvers (*see details below right*). Pier covers and spandrels, embossed with triangular shapes to provide a pattern of light and shadow, were selected after a study of over 100 panel designs. Compared with 48 psf for a 4″ brick exterior wall, the weight of this skin is only 2 psf. An unrealistic section in New York City's building code was satisfied by the erection of a 4″ cinder-concrete block back-up with applied insulation in lieu of a prefab spandrel system.

The skyscraper's windows, 4′-5″ x 6′-3″ and of continuous rectangular section, will pivot on a vertical axis to permit cleaning from inside the building. Double vinyl gaskets act as seals against wind and water on the more than 3200 window openings.

Owner: Galbreath Corporation; architects: Harrison & Abramovitz and Peterkin; general contractor: Turner Construction Company. Truscon will handle all stainless-steel fabrication.

Rendering of new 45-story Socony-Vacuum Building looking southeast from 42nd and Lexington toward Third Avenue (below); *note Raymond Hood's Daily News Building in background.*

Details of embossed stainless-steel panels (below bottom).



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The footnote on this page in March 1955 P/A was correct in listing both *Building Check List* and *Streamlined Specifications Standards* as Reinhold publications, but should have made it clear that only the first is available at $3.50 a copy. The *Standards* (Volume 1) sells at $20 a set.

crab

Feller by the name of Marley Cole writes:

"Mr. Progressive Architect: you are playing *h e double Q* with Tennessee quartzite or "Crab Orchard" stone business. We unimaginative and nameless rock busters down here in the quarries, trying to get out the kind of stone you call for, are having a hemorrhage. We are hereby giving you a demand invitation to come down and learn right here at the quarries what you have done to us.

"Listen, Mr. Architect, have a heart. Maybe we have got the wrong impression of you, and we know you must have the wrong impression of us—or maybe I should have said, of our stone. I am going to confess—we all say it with cuss words to ourselves, only I am going to cry it out from the heart, where it's hurting. We have got a sneaking suspicion that you are one of these bluenoses on the longhair side of society, who never pecked on a rock with anything heavier than a watch-tinker's mallet, who sits in an ivory tower and dreams up lines and specifications that the Good Lord in heaven would have a nervous breakdown trying to fill.

"To get down to rock bottom, either you have sold yourself, or somebody has sold you, on the skrewy idea that the only beautiful and progressive aspect of a stone structure must be in its lines. Lines, like in the car industry, that you have to stand off half a block to appreciate—and even at that distance the finished product does not resemble anything very closely resembling nature's handiwork. The lines you draw on your blueprints just never, never must be allowed to show wall faces more than two measly inches high, and faces that absolutely must range three feet long or the AIA would be scandalized right out of the profession.

"Now, friend (let me call you friend, at this point), if you were, say for 15 minutes, a quarry man, if you were a quarry man producing stone that is all sawed—if the thickness and the width and the length were all determined by how you held your saw—then maybe the order could be filled without giving you too many ulcers. But if you are a quartzite producer, you'll get the point and I mean you'll get the point. For, you see, quartzite is not sawed. No! You don't touch the stuff with a saw. It comes ready-made. It determines its own thicknesses. It just grows thataway. And I believe you know, or maybe just forgot, that quartzite is hard, harder than marble or just about anything this side of a diamond-blade saw. There is not a saw made for cutting this stone. No, not really. Not even a diamond-blade saw. You see, friend, you snap this stone. That is, you snap the wall widths and the lengths. When I say lengths I only mean in a limited sense. But as for the thicknesses, the part that makes the wall faces, friend, you don't snap that part. No, and you don't saw it. You don't split it either. You just leave it the way it was when you found it.

"You get the picture? You do not predetermine the face heights of your stock in the quarry—and after all, if there were no mundane quarries full of us fellows with the weak minds and the strong backs, *you* would not have any quartzite to ding around with. So at the quarry you just take it out as the Creator put it in there. It was not laid down there in course heights exactly and precisely and ever so neatly 1″, 2-½″, 4″ and 4-½″. No, friend. It runs ⅞″, 1-15/16″, 2-1/99″ and just any old random face height that might fall next. Worse still, though it make you fancy-minded dreamer-uppers say an unspeakable word, this stone runs thick. It runs just any old thickness it wants to—5″, 7″, 9-11/47″. You name it; it's thar in them hills! And the devil was never made could whittle it down to match those fancy lines you've been drawing.

"Most scandalous of all, the thicker the face of the stone the more beautiful. I mean it. *The more beautiful.* In an 8″ height of Tennessee quartzite you get a peep at all the glorious tints and mixtures of crystal-like sandstone, gleaming and shimmering. Now you take your pencil and thin that face-height down. Slice it down to 2″. Then you draw it out to some preposterous four or six feet. Make your wall face look like a lot of yardsticks laid on edge. And what have you? That's right. *Lines.* But, brother, lines is for *brick.* In a natural stone that comes in natural layers you can't show a decent grain from such a measly squint at its face. Remember the Lord showed Moses a glimpse of the Promised Land. But the Lord wasn't stingy about it. What if he had taken Moses up on some little 40-foot knob and said "Look over"? How much would Moses have seen? No, the Lord took Moses up on a great high mountain. From there he could get a decent view of all the glory and the beauty. It is just the same thing if you want people to appreciate Tennessee quartzite. You have got to let them *see* it. And to do that you have got to take a progressive outlook on things, sketch a jack under those pencil lines of yours and pry them up high enough to allow for some decent face heights to show through!

"Sure, I know what they say. Buildings these days are running to the ranch type. Low and long. You have to draw stone lines that are correspondingly low and long. Stretched out, extenuated, attenuated, and otherwise reaching across the lawn and up in the next block. Otherwise how would the thing called a house correspond to the sleek lines of their Cadillac parked out front? Poo-poo!

"We're not sore at you, but here is what we are up against: we are up against a market that uses mostly sawed-bed stones. You specify most of your work on a sawed-bed basis. For variety's sake you toss in a few million dollars worth of Tennessee stone jobs. Automatically you draw it up in the long, sleazy-line-job style. When you do that, you kill two stones with one birdie. You not only rob our stone of its chance to really show itself off—in face heights, not in a face-stretching contest—but also you make it more and more impossible for us quarry men to supply the market. Most quartzite comes in heights of 3″ and over. When we have to sort out the blade-thin layers and haul the really finer stone out on the sprawls pile, it puts us in the position with our neighbors the farmer. What if somebody told them the only ears of corn they could sell are their red ears? There are only two or three red ears in a bushel. The longer I think of it the madder I get! And I have been thinking of it for years now.

"Friend, come down and see for yourself what you are doing to us. There is a real and present danger that we may have to close up business, if you don't help us out!"

* (H.J.) = Rock

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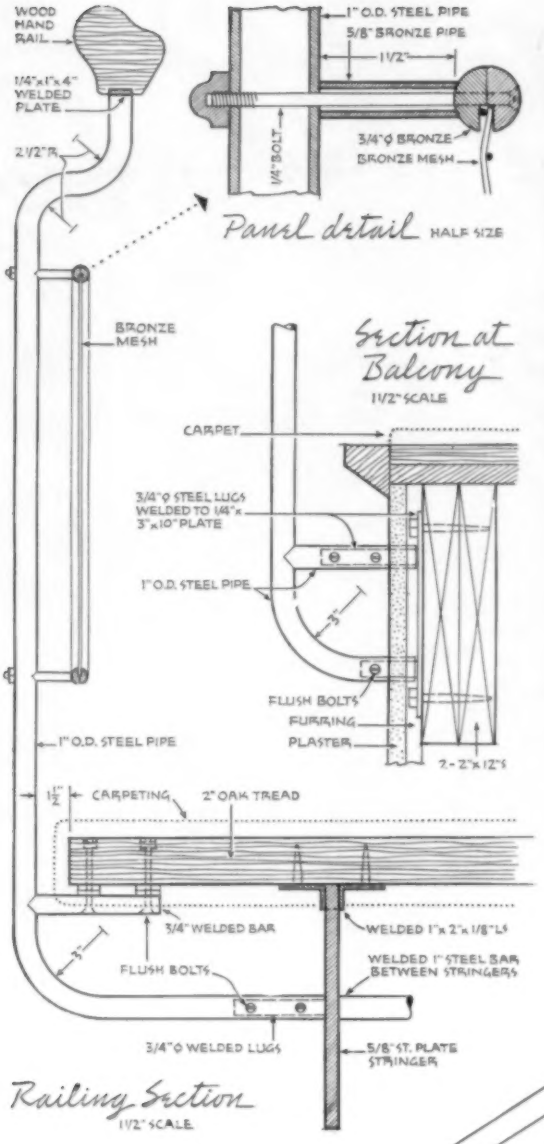
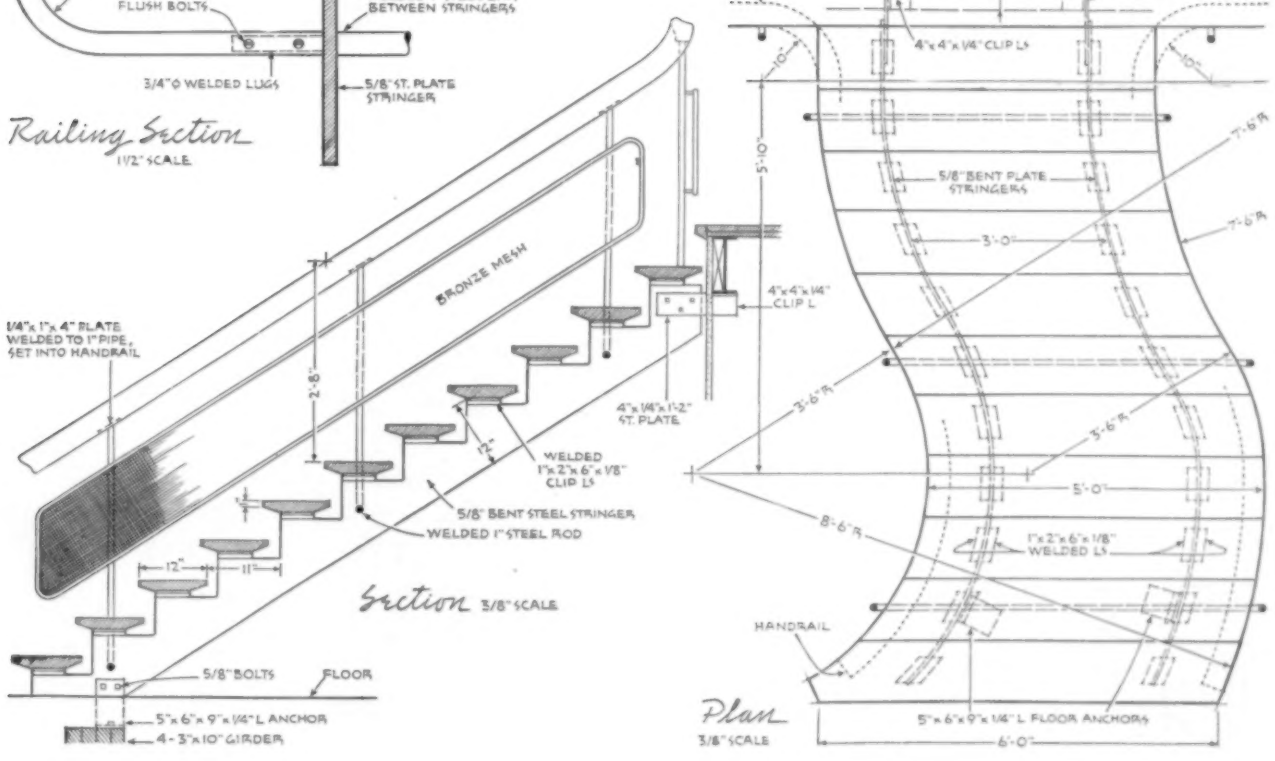
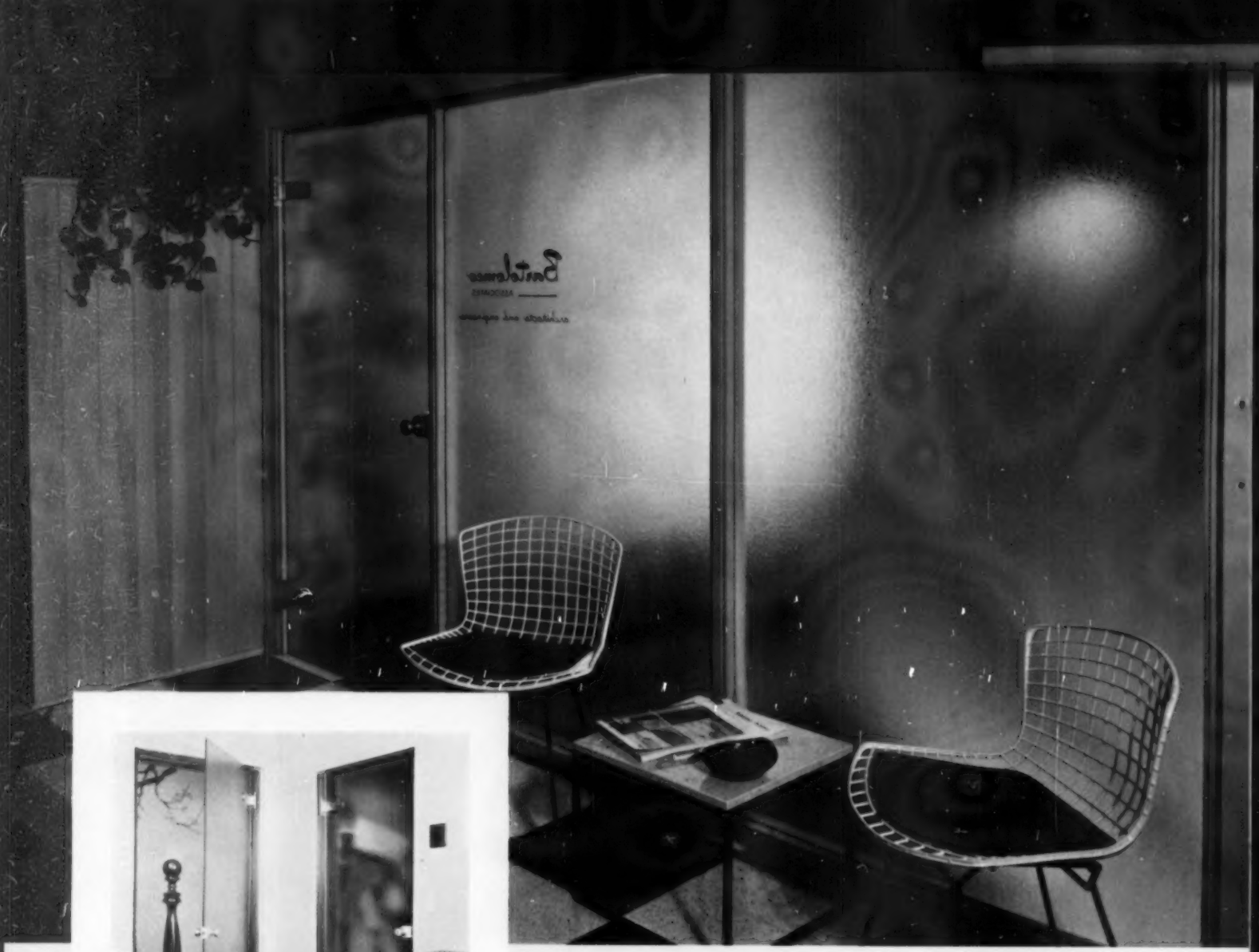




HOUSE, Long Island, N. Y.

Katz-Waisman-Blumenkranz-Stein-Weber: Architects Associated



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Louise Sloane

dining areas

The now popular use of the phrase "dining area" instead of "dining room" clearly reflects the architect's influence on contemporary living. It was Architect Edward Stone who, in the 1930s, first exposed to the public a "dining-kitchen" in an exhibition at the Metropolitan Museum of Art in New York. But though 20 years have turned the phrase into a language cliche, the dining area itself has not become a design cliche, as evidenced by the fresh and varied handling illustrated in this section.

Perhaps no other aspect of residential design demands of the architect such sensitivity to the living needs and social habits of the client. Is the family life one of formality, of "dress-for-dinner" and "coffee-in-the-drawing-room" elegance? Or is the mistress (or master) of the house a gourmet cook, who prefers to prepare the food in person without sacrificing the company of family or guests? Will the dining area serve two or four or ten? Are there servants in the home or is the electric switch the only servant? Such questions as these, when answered, determine the location of the dining area as well its plan and its furnishings.

In the five examples that we show, one dining area is actually a part of the kitchen (Gray Taylor); one is separated not at all from the living room, and by only a dividing storage unit from the kitchen (John Grace); one is separated entirely from the kitchen but flows uninterrupted from the living room (Neutra); one may be set off when desired, by a sliding wood door (Ain); and one is treated as a separate room (Miller). Each is suited to the needs of the residents—through choice of surface materials, furnishings, arrangement. Although they have in common good contemporary design thinking, each solution expresses the diversity that escapes cliche decor.

dining areas

A dining area related as much to the exterior as to the interior, this room opens into the walled patio shown, and may also be opened toward a distant view seen through the glass loggia, or shut off from the loggia by a 12-foot-wide sliding wall panel of wood. Unbroken areas of glass, interesting planting, the natural textures of redwood wall and cork floor provide a stimulating background for the conventional furniture arrangement. *Photo: Julius Shulman*

data

doors

Sliding Partitions: Grant Pulley & Hardware Co., 31-85 Whitestone Pkwy., Flushing, N. Y.

furnishings

Chairs: Herman Miller Furniture Co., Zeeland, Mich.

walls, ceiling, flooring

Walls: California redwood.

Ceiling: Plaster, painted white.

Floor: Danish cork.

location	Altadena, California
architect	Gregory Ain
collaborating architects	Joseph Johnson and Alfred Day

location | Greenwich, Connecticut

architect | Gray Taylor

data

cabinetwork

Cabinets: St. Charles units/ Greenwich Custom Kitchens, 101 Park Ave., New York, N. Y.

windows

Sash: Steelbilt, Inc., 18001 S. Figueroa St., Gardena, Calif.

Shades: natural walnut pull-down shades/ The Holland Shade Co., 993 Third Ave., New York, N. Y.

equipment

Ovens: Thermidor Electric Manufacturing Co., 5119 District Blvd., Los Angeles 22, Calif.

Refrigerator, Freezer: Westinghouse Electric Corporation, 246 E. Fourth St., Mansfield, Ohio.

furnishings

Table: architect-designed/ walnut with marble lazy Susan/ permanently installed to floor.

Chairs: Herman Miller Furniture Co., Zeeland, Mich.

lighting

Fixtures: Finland House, 41 E. 50 St., New York, N.Y.

walls, ceiling, flooring

Walls: painted concrete block.

Ceiling: 2-1/8" fir plank, finished with Preen cleaner wax.

Floor: mastic terrazzo/ gray with white chips/ Consolidated Flooring & Decking Corp., 155 E. 40 St., New York, N.Y.

Freedom to visit with guests or oversee children while preparing meals; reduction of maintenance problems to a minimum; and custom-designed convenience of work and storage areas resulted for the architect's wife from the planning of this dining-kitchen area for the architect's own home. Gray-painted cabinets and gray-with-white terrazzo floor warm the scheme, which is further enriched by the natural wood tones of the fir ceiling, the walnut window shades, walnut-and-marble dining table, and brass lighting fixtures.

Photos: S. C. Valastro

dining areas

location | Beverly Hills, California

architect | Richard J. Neutra

Dining area that is thoughtfully integrated with the living area, with the outdoors, and with the adjacent service wing. Sliding glass wall allows merging of the dining area with the patio. No visible divider sets off the dining corner from the living area—this is accomplished with a defining carpet and through furniture arrangement. Two walls of the dining area are unified by built-in storage units of birch, one containing a pass-through panel opening into the kitchen. When it is desirable to use the dining area to expand the living area, the architect-designed table may be lowered to coffee-table height, the dining chairs used as occasional chairs. The color scheme of "naturals" and "neutrals" serves as muted background for California sunlight and rich planting. Lighting combines concealed spotlight over dining table and continuous light troughs under roof overhang along full length of living quarters, and also over built-in buffet. *Photos: Julius Shulman*

dining corner as living room extension

same corner set for dining

data

cabinetwork

Sideboard, Buffet, Bar: birch/ architect-designed/ constructed locally.

furnishings and fabrics

Draperies: "Desert Sand"/ Menlo of California/ Clark & Birchfield, Los Angeles, Calif.

Dual-Purpose Table: executed in birch and chrome according to architect's patented design/ Fred T. Epping, 11163 La Grange, Los Angeles, Calif.

Dining-Occasional Chair: executed according to architect's own design/ steel-spring back/ chrome-plated tubular legs/ Fred T. Epping; upholstered in "Duran"/ The Masland Duraleather Co., Philadelphia 4, Pa.

Patio Chair: aluminum tubing/ yellow canvas/ Herman Miller Furniture Co., Zeeland, Mich.

Patio Table: metal frame/ glass top/ Van Keppel-Green, 9501 Santa Monica Blvd., Los Angeles, Calif.

lighting

Light Over Dining Table: recessed and concealed spotlight (compound lens) for relamping from below/ vertical beam, adjustable spread/ Kliegl, C. W. Cole, 320 E. 12 St., Los Angeles, Calif.

Continuous Light Trough in Exterior Soffit and over Buffet: architect-designed/ standard fluorescent tubes/ flashed opal glass (imported).

mobile

Tom Davidson/ Los Angeles, Calif.

walls, ceiling, flooring

Wainscot: ½" birch plywood/ U.S. Plywood Corporation, 55 W. 44 St., New York, N.Y.

Ceiling: T & G fir, painted.

Floor: cork/ coconut brown/ Armstrong Cork Co., Lancaster, Pa.

Carpet: "Deep Pile"/ off-white/ Slaxtex Mills, Salem, Ore.

dining areas

location	Akron, Ohio
interior designer	Leon Gordon Miller
architects	Tuchman & Canute

data

furnishings and fabrics

Dining Table: Jens Risom, 49 E. 53 St., New York, N.Y.

Dining Chairs: Hans Wegner/ Denmark.

Drapery Fabric: Thaibok, 3 E. 52 St., New York, N.Y.

lighting

Ceiling Fixture: Finland House, 41 E. 50 St., New York, N.Y.

flooring

Carpet: Firth Carpet Co., 295 Fifth Ave., New York, N.Y.

accessories

Tapestry: Mariska Karasz/ Bertha Schaefer Gallery, 32 E. 57 St., New York, N.Y.

Wooden Bowl: African/ Carlsbach Gallery, 937 Third Ave., New York, N.Y.

Separated from the living room by a gray sandstone fireplace wall, but visible through wide openings on either side, this dining area was designed to be complete in itself. It maintains the formality of the separate dining room, yet conveys warmth, comfort, and drama through the designer's deft blending of textures and materials. Two walls are chestnut, honey in color. The glass window wall is hung with ice-blue silk. Walnut table and chairs are rich against the tone-mixture carpet. The brass ceiling fixture adds sparkle, the wall tapestry introduces added pattern interest.

Photo: Martin Linsey

Dining end of the living floor in a hillside house, the structure itself and all interior planning designed to take fullest advantage of the extraordinary setting overlooking Sausalito. "Openness" is the keynote, with the view providing color, texture, and pattern at the windows; maximum built-in storage freeing the interior of distraction; natural surface colors chosen to offset the abundant light. Storage cabinets on left divide kitchen from dining area, extend forward into living area which continues full length of the house. Flush double doors next to sun-deck door conceal a built-in bar. *Photo: Phil Palmer*

location	Sausalito, California
architect	John G. Grace
general contractor	W. W. Gorrell

data

cabinetwork

Storage Cabinets: birch top, sides, pulls/ brown, perforated Masonite sliding doors/ Fairfax Lumber Co., Fairfax, Calif.

windows

Glass: Pierson Sashless/ 1/4" Factrolite sliding glass/ Pittsburgh Plate Glass Co., Pittsburgh, Pa.

Steel Sash: Soule Steel Co., San Francisco, Calif.

equipment

Kitchen Range and Refrigerator: General Electric Company, Bridgeport, Conn.

furnishings

Dining Table, Chairs: Luther W. Conover, Sausalito, Calif.

lighting

Cove Lighting: incandescent tube lights at clerestory/ Bowman Electric, San Rafael, Calif.

walls, ceiling, flooring

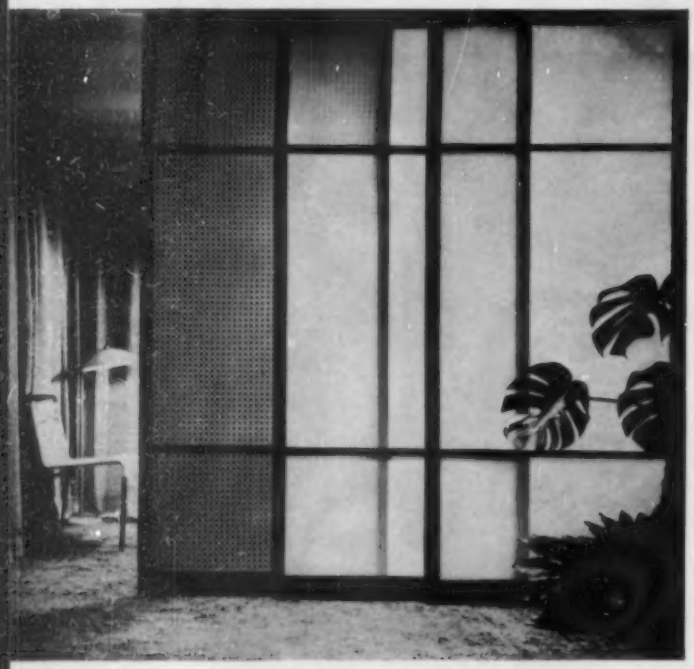
Wall: resawn California Redwood, Cabot clear sealer, natural finish/ girders and structural members dark brown lead-and-oil dull finish.

Ceiling: Douglas fir laminated 2x3" set on edge, stained light silver gray/ Cabot stainwax.

Floor: oak, natural finish/ Eureka Hardwood Floor Co., 1133 Butterfield Rd., San Anselmo, Calif.

p/a interior design products

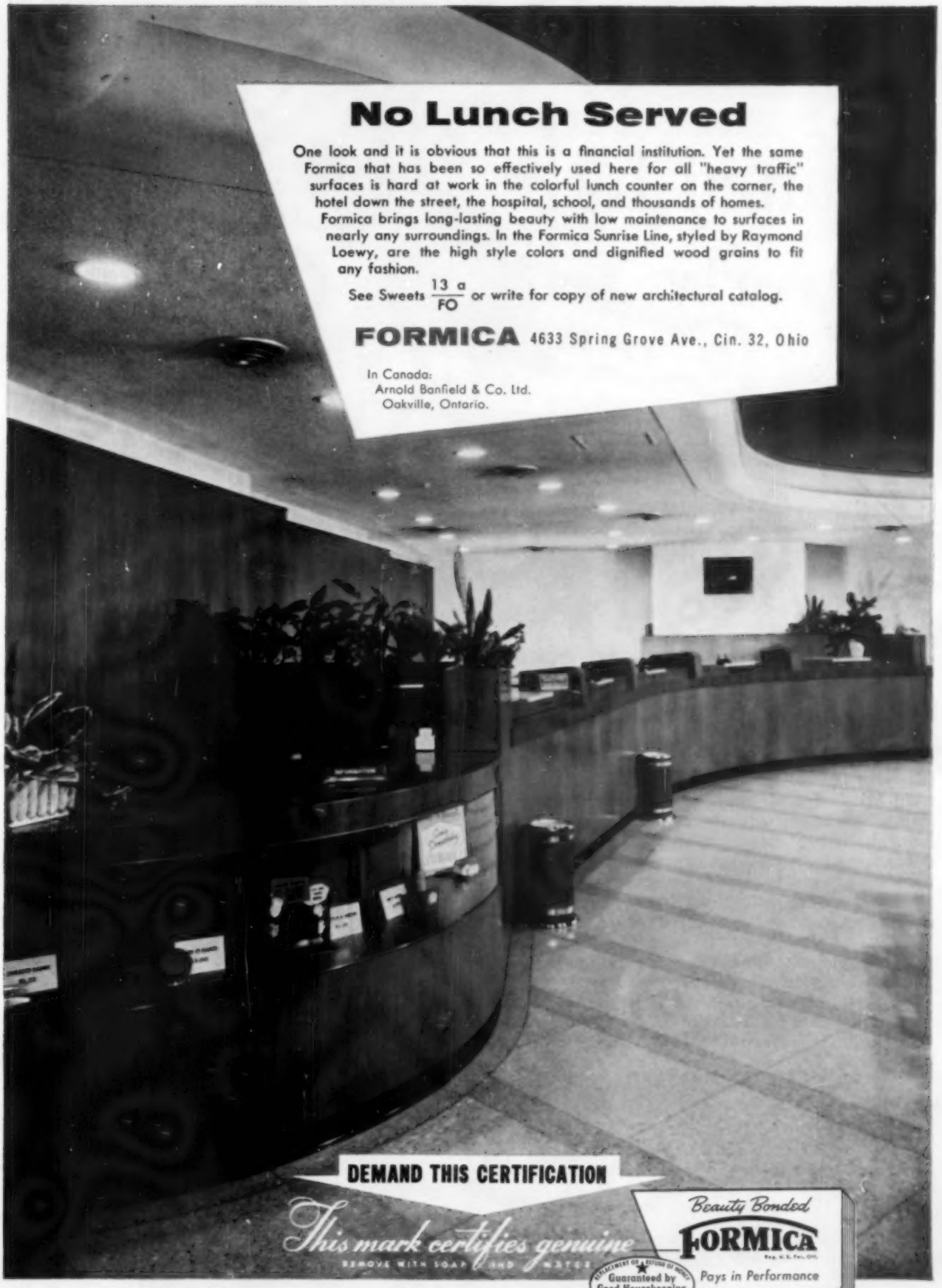
Sliding Room Divider: individual panels in light or dark mahogany or ebony/ Grant aluminum track, adjustable nylon ball-bearing top rollers/ at bottom, panels held by Sliding Guide attached to panel-bottom, permitting installation over carpets without cutting/ panel inserts of perforated metal or translucent plastic/ designed by Carl P. Dumbolton/ **retail:** $2.50 to $4 per sq ft depending on panel size and insert materials selected/ **Carlton Products, 344 Palisade St., Pasadena 3, Calif.**



Teak Installation: lounge in American Bar Association, Chicago, Ill./ walls paneled in East Indian Teak/ Teak is from a collection of imported architectural veneers from all over the world/ **Chester B. Stem, Inc., 785 Grant Line Rd., New Albany, Ind.**

Laminated Folding Door: "Hufcor"/ 5-ply, self-supporting laminated cover/ washable, sun-fast vinyl in white sand, shadow tan, heather brown, green mist, pearl gray/ snap-on feature permits change of covers/ resistant to sound penetration/ vertical pantograph design assures smooth operation, true vertical position/ widths from 2'6" to 10', heights of 6'6", 6'8½", 8'/ **retail:** $31 to $146/ **The Hough Shade Corporation, 1023-1059 S. Jackson, Janesville, Wis.**

Window Shades and Sheers: "Texturlite" window shades with matching sheer fabrics/ room side of shade faced with woven texture in Fleck, Ratine, Royal, Tweed designs/ outside of shade vinyl-coated, embossed/ colors: white, blush pink, jonquil yellow, mist green, beige/ shades up to 54" wide, fabrics 39", 57" wide/ **retail:** shade 6' x 36" $9 to $12; fabric $2.25 to $4.75 per yd/ designed by Freda Diamond/ **Window Shade Manufacturers Association, 443 Fourth Ave., New York 16, N. Y.**


No Lunch Served
One look and it is obvious that this is a financial institution. Yet the same Formica that has been so effectively used here for all "heavy traffic" surfaces is hard at work in the colorful lunch counter on the corner, the hotel down the street, the hospital, school, and thousands of homes.
Formica brings long-lasting beauty with low maintenance to surfaces in nearly any surroundings. In the Formica Sunrise Line, styled by Raymond Loewy, are the high style colors and dignified wood grains to fit any fashion.
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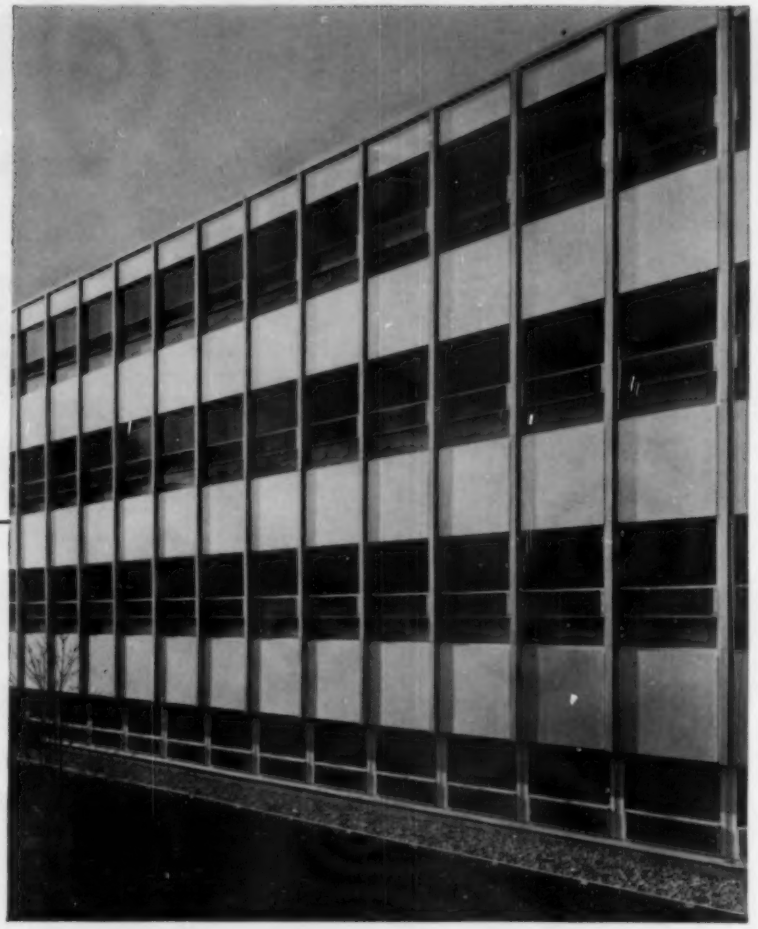
Southwestern Savings & Loan Assn., Houston, Texas
Zimmerman and Bible, Architects
Storecrafters, Formica Fabricator

Seeing is believing. If this wash-off identification is not on the surface, it's not FORMICA.

crafted by Overly...

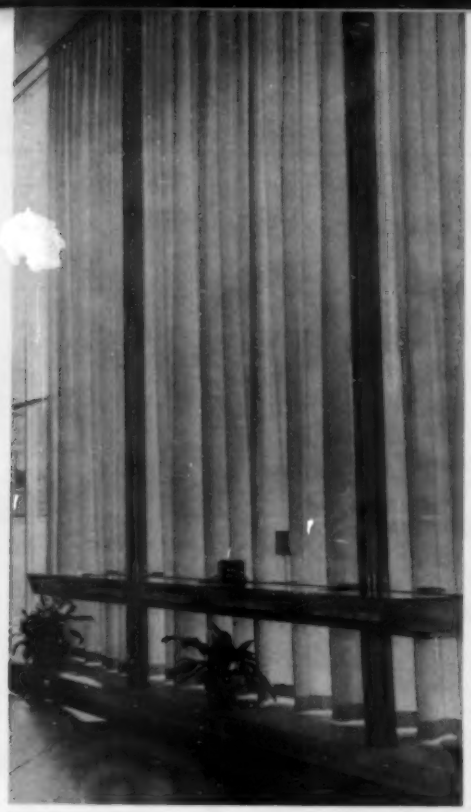
unique spandrel design at Carnegie Tech



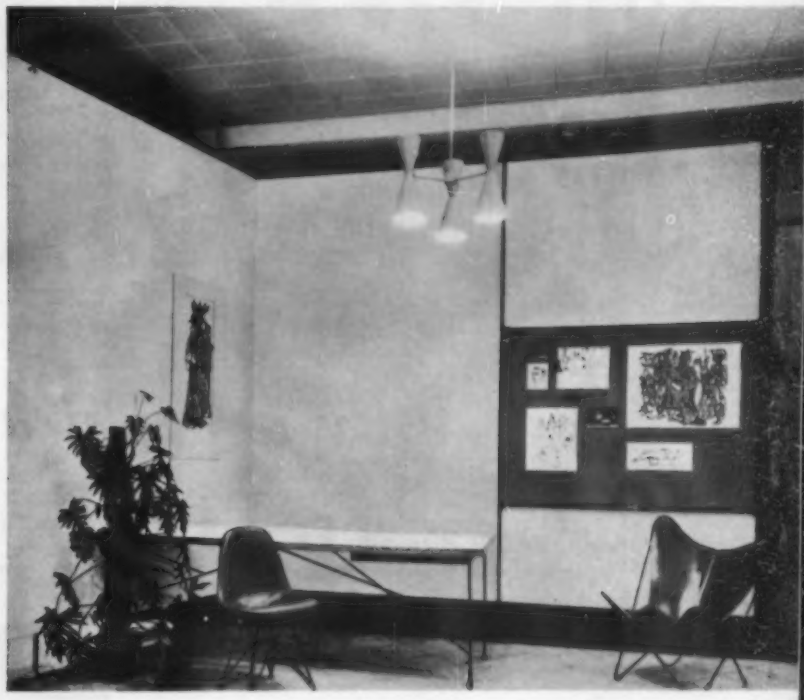
The wall-facing design and workmanship on Donner Hall in Pittsburgh, Pennsylvania, are in keeping with high architectural standards of Carnegie Institute of Technology and those of Pittsburgh architects Mitchell & Ritchey. • Overly *flat* spandrel wall panels of aluminum, a new construction technique, and the absence of flashing make this new dormitory for men a prototype for several other metal-faced buildings to be erected elsewhere. • Collaborating with the architects named, Overly design engineers have reached these objectives: (1) *A unit type wall* with no metal passing through from exterior to interior of the building. This eliminates moisture and frost condensation inside. (2) *A self-flashed wall.* Special design of flanges on spandrels and mullions provides expansion joints that eliminate the necessity of flashing or caulking compounds.
(3) *A building facade* made up of aluminum spandrel sections that present a completely level and flat finished appearance. By unique jigging and manufacturing methods, the spandrel panel surfaces are entirely free from that "pillow look"—bulges or unevenness. • We offer a design service in metal spandrel construction. And we are now fabricating and erecting various designs of formed spandrel panels in both colored and natural finished aluminum, and in stainless steel. *Write us today for details of the Carnegie Tech job.*

OVERLY MANUFACTURING COMPANY
Greensburg, Pennsylvania
Los Angeles 39, California

p/a interior design products



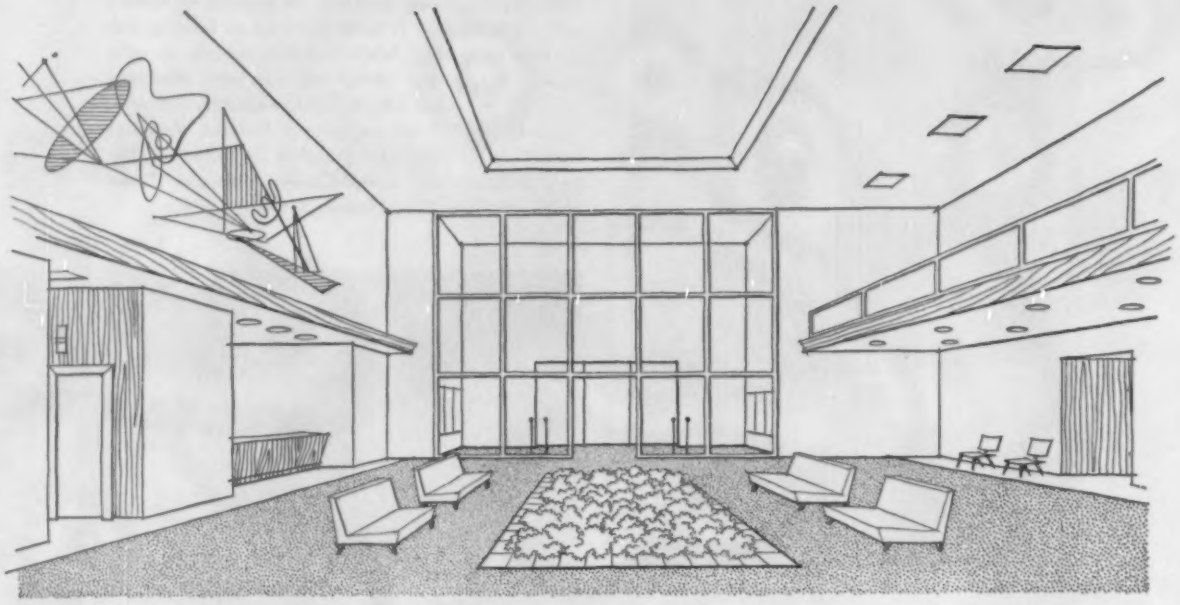
Fiberglas Draperies: covering an expanse of window wall 110 ft long, 20 ft high/ operated on traverse rods by electric motor/ fabric is nubby boucle in gold, woven of Fiberglas yarns/ will not burn, eliminates sun-glare yet filters diffused light/ washable, no ironing needed/ shrink- and sag-proof/ National American Bank, New Orleans, La./ designed by Goldstein, Parham & Labouisse/ **Owens-Corning Fiberglas Corporation, Nicholas Bldg., Toledo 1, Ohio.**



"Marlite" Partition: Philadelphia Museum School of Art foyer entrance/ partition of white "Marlite" acts as weather-breaker and directional exposure for traffic/ bulletin board for students' work/ interior designed by Paul McCobb/ **Marsh Wall Products, Inc., Dover, Ohio.**

Leather Wall: saddle-stitched horizontal stripes in deep olive, lemon, canteloupe leather/ chair in canteloupe leather from Harvey Probber, Inc./ radio-phonograph loudspeaker in basket-weave leather strips, olive and lemon/ setting by Melanie Kahane/ "Leather in Decoration Show," Merchandise Mart, Chicago, Ill./ **The Upholstery Leather Group, 141 E. 44 St., New York, N.Y.**

Transparent Photomural: in full natural color/ illuminated from rear/ 6' high by 54' long on an "S"-shaped curve/ mounted between two pieces of glass, consists of 18 equal vertical sections/ divider bars between sections are bronze extrusion "T"-molding/ only illumination in room provided by lighting of photomural, four rows of fluorescent tubing placed horizontally across entire width/ architects: Holabird & Root & Burgee/ location, Blackstone Hotel/ **Kaufmann & Fabry Co., 425 S. Wabash Ave., Chicago 5, Ill.**



Why not add a comprehensive
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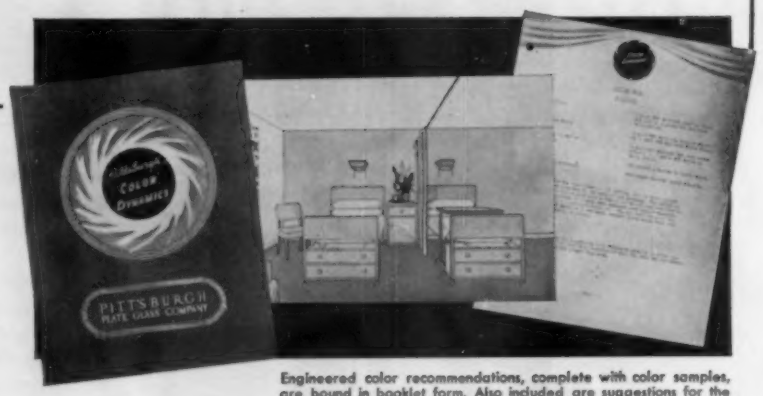

Engineered color recommendations, complete with color samples, are bound in booklet form. Also included are suggestions for the correct types of coatings for every kind of material and construction.

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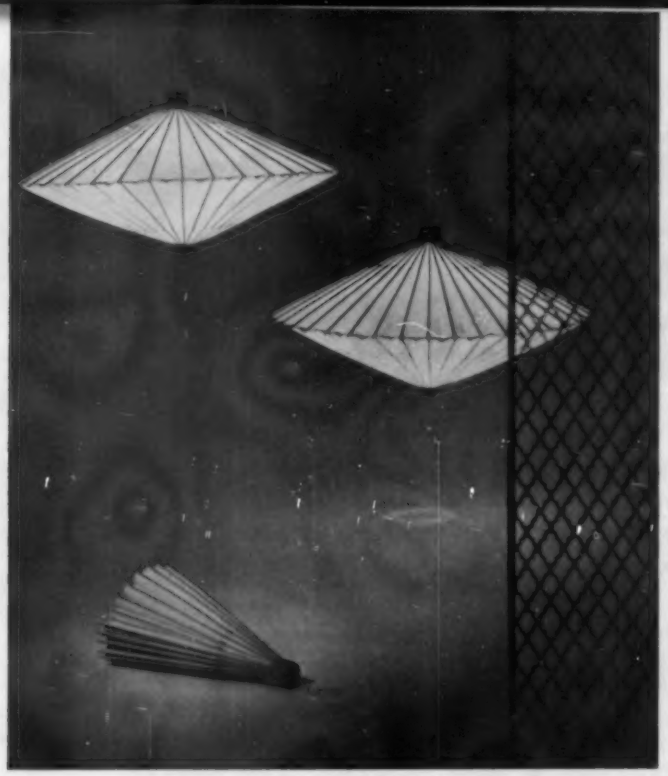
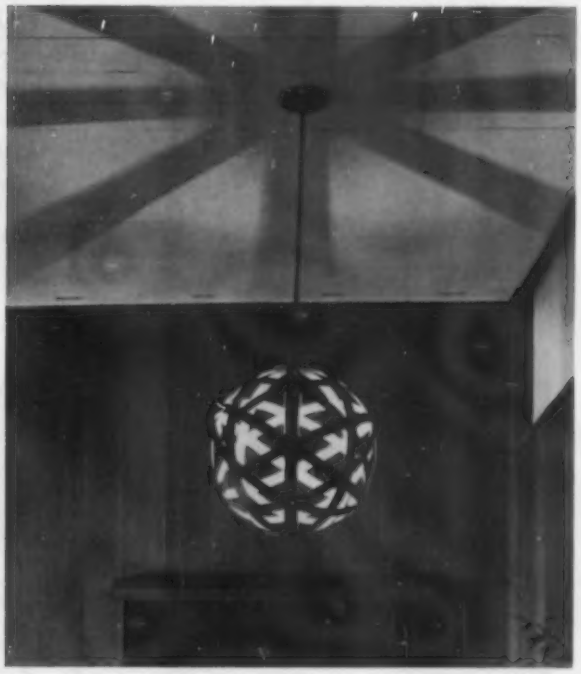
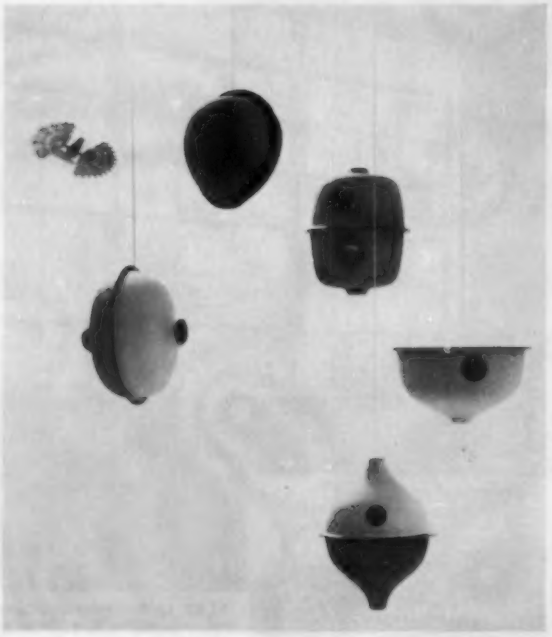
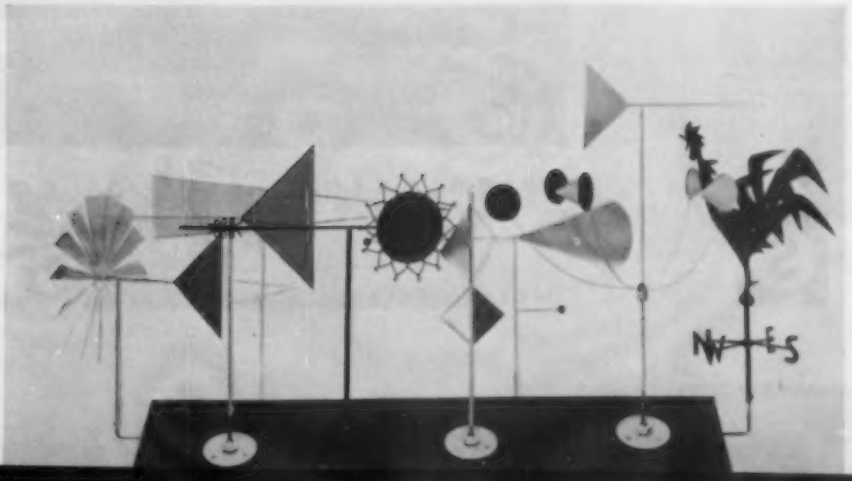


Lighting Fixtures: (left) Parasol lanterns imported from Japan/ in two sizes/ #P-1 radius 17", **retail:** $3/ #P-2 radius 20", **retail:** $4.20; (below) **open sphere** ceiling fixture/ diameter 11", **retail:** $40/ diameter 14", **retail:** $50/ of brass, lacquered or unlacquered/ wired, with choice of 2 ft of brass pipe as shown or 2 ft of brass chain/ additional lengths of chain or pipe available at $2 per lineal foot/ designed by Helena Buckingham/ **Kneedler-Fauchere, 451 Jackson Sq., San Francisco 11, Calif.**





Birdcages and Weathervanes: (left) birdcages of heat-resistant thermoplastic/ in blue, red or yellow with white; or gray, blue or red with yellow/ weatherproof, odorless/ snap-on sections open for cleaning/ suspended on plastic-coated "Codacord"/ **retail:** $5 to $20; (below) **weathervanes** of enameled metal/ white, black, orange, red, yellow/ ball-and-socket base plates for vertical adjustment/ **retail:** $6.50 to $17.50/ all designed by George Nelson for Howard Miller Plastics Division, Zeeland, Michigan/ **Richards-Morgenthau, 225 Fifth Ave., New York 10, N.Y.**



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Upholstery Febric: "Castleton," new design and construction in supported vinyl plastic fabric/ plastic-coated to permit passage of air through invisible pores/ provides new seating comfort, requires no venting on loose cushions, allowing cushion reversibility/ design by Russel Wright is all-over texture with changeable effect/ in 15 unusually high-style colors/ 52" wide/ washable/ "Fabrilite" construction/ **Fabrics Division, E. I. duPont de Nemours & Co., Inc., Newburgh, N.Y.**

Fire-Resistant Fabric: "Dura-Decor" supported fabric with core of Fiberglas/ new flat finish, lighter weight, lower cost/ available in same color both sides or color on one side, neutral beige on reverse/ usable for room-darkening in school or other public auditoriums, for cycloramas and borders, wardrobe openings, room dividers/ may be decorated with water-paints as scenery backdrops/ permanently fireproof, washable, sturdy/ **Duracote Corporation, Ravenna, Ohio.**

Ornamented Circlines: louvers and center ornaments in black, white, chrome, and gray combinations adapted to standard "Venus," "Halo," and "Saturn" circlines to provide decorative effect/ louvers of perforated steel for efficiency and low brightness/ **Carter Lighting Co., Chelsea 50, Mass.**

Architects' Service: new program to assist professionals includes: specialized personnel; reduction or abolition of minimum order requirements on many lines; direct liaison with factories on service matters; easing of returns policy/ **Raymor Manufacturing Co., Inc., Richards-Morgenthau Co., 225 Fifth Ave., New York 10, N.Y.**

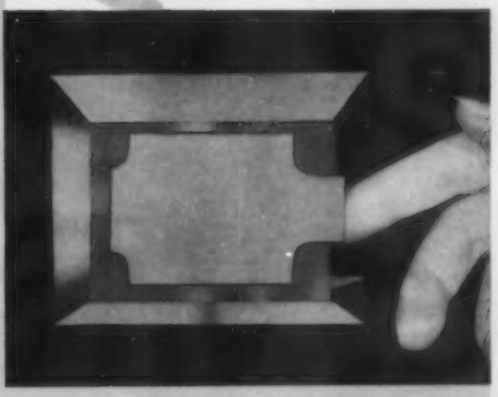
Woven Oak Screen: kiln-dried oak, natural finish/ strips hand-woven and permanently set into solid-oak frame/ single-panel size: 5'8" high x 16" wide/ weight, 8 lb/ as screens, panels connected by double-acting folding hinges/ as sliding doors, installed on overhead hangers/ as shutters, hinge-attached to vertical support/ 3-panel screen 48" x 68" high/ **retail: $63**/ designed by Carter Morningstar/ Viking Woodcrafters, Inc./ **Gotham Carpet Co., Inc., 515 Madison Ave., New York 22, N.Y.**

Store Air Conditioners: self-contained units of 2, 3, 5, and 7-½ tons/ 163 separate air-flow combinations/ both air-and water-cooled/ built in three sections: hermetically-sealed cooling system; blower section mountable in a variety of ways; plenum chamber providing for front, side, or rear discharge, with louvered grill having vertical and horizontal adjustments/ Underwriter Laboratories-approved/ **Mitchell Mfg. Co., 2525 N. Clybourn Ave., Chicago, Ill.**

Rectangular Bin-Light: for lighting bins, shelves, stockpiles along both sides of narrow aisles/ directs diffused light downward at angles to illuminate bin interiors from top to bottom tiers/ reflector components provide shielding in direct viewing angles/ reflector of porcelain enameled steel, white inside and out/ for 75-, 100-, 150-watt lamps, with pendent, feed-thru, or outlet box fitting/ **Electro Silv-A-King Corporation, 1535 S. Paulina, Chicago 8, Ill.**

GREAT SCOTT

what a wonderful new idea!



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House Beautiful exhibition room designed by John Hill, based on an idea first projected in 1922 by Frank Lloyd Wright.

Versatile

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makes news with

LINE • TEXTURE • COLOR

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The interesting textures, planes, lines and color of the block wall and fireplace are the principal interest in this room . . . adding richness and a third-dimensional sculptured quality. Yet the interesting wall patterns were created with square 8″x8″ concrete block, tilted to become diamonds. This diamond, and the half-diamond, or "V," became the design motif for the entire room . . . echoed and re-echoed in the offset-block wall pattern, the fireplace, the furnishings, even the floor plan . . . proving again that *you can do more with versatile concrete masonry!*

National Concrete Masonry Association

Many new concrete masonry wall patterns are shown in the handy reference booklet, "Ideas for Wall Patterns with Concrete Masonry," which was an exceptional merit award winner in the 1954 AIA-Producers' Council Product Literature Competition. **Ask your local NCMA member for your copy.**

Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.

air and temperature control

1-23. Anaconda Copper-Tube Panel Grids (C-6), 28-p. booklet containing information on preformed copper tubing for radiant-panel heating. Gives suggestions for designing radiant-heating systems in floor or ceiling; provides technical data on heat output, heat-loss factors, panel circuits, and piping requirements. Also includes material on applications of radiant heat for snow melting. Photos and layout drawings. The American Brass Co., Waterbury 20, Conn.

1-24. Heatilator Fireplace, AIA 14-E-5 (148), 8-p. brochure illustrating prefab steel-fireplace unit, scientifically designed to insure smoke-free performance. Explains operation of unit, which circulates warm air to all corners of room and even to adjacent rooms; describes damper that seals flue tightly when fireplace is not in use. Photos show contemporary and traditional installations; specifications; information on accessories. Heatilator Inc., Syracuse 5, N. Y.

1-25. Weather Compensating Control Systems, 150-p. manual containing pamphlets and supplementary data sheets on controls for hot-water and steam heating systems. Covers basic principles of operation of each system, giving detailed material on electrical accessories and installation. Also describes finned-tube and baseboard radiation. Photos; layout diagrams; tables. Sarcotherm Controls, Inc., Empire State Bldg., New York 1, N. Y.

1-26. What You Should Know About Modern Steam Heating, 20-p. booklet suggesting when and how to specify steam heat. Outlines physical properties of steam and control of steam heat; lists instances where steam may be used to best advantage as well as its limitations. Gives specifications checklist. Steam Heating Equipment Manufacturers Assn., 450 E. Ohio St., Chicago 11, Ill.

1-27. Uskon Radiant Heat (S-55), 8-p. bulletin describing electrically heated radiant-ceiling panels. Shows construction of panel utilizing conductive rubber—instead of wires—to give even heat over entire panel; explains installation of 1/16" thick panel with adhesives. Provides technical data on computation of required panel area. Photos; tables; specifications. U. S. Rubber Co., 1230 Ave. of Americas, New York 20, N. Y.

1-28. "Perimaheat" Baseboard Convectors, AIA 30-C-4 (4354), 12-p. publication on baseboard convectors designed for use with hot-water heating systems. Gives information for design of system, including typical layouts, capacity data, roughing-in dimensions, and architectural specifications. Photos, drawings, tables. Young Radiator Co., Racine, Wis.

construction

2-33. Alcoa Aluminum in Architecture, AIA 15-J, 32-p. catalog of aluminum products. Discusses properties of aluminum—its advantages, characteristics, and finishes, including data on color-surfaced aluminum for exterior use. Contains description, details, and dimensions of aluminum building products, structural shapes, and curtain-wall facings. Photos; drawings; guide for selection of alloys. Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa.

2-34. What to Look for in a Good Translucent Building Panel, 4-p. folder prepared to aid architects in choice of translucent panels. Discusses standards involved in weight-thickness measurement, glass content, strength, light transmission, surface finish, pitch *v.* depth, and weather resistance. Drawing. Corrulux Div., Libbey-Owens-Ford Glass Co., P. O. Box 20026, Houston 25, Tex.

2-35. Specifications for Metal Lathing and Furring, AIA 20-B-1, 20-p. guide for specification of many types of metal-lath construction. Includes information on solid or hollow partitions and fire protection of structure. Two changes from previous specifications are noted, involving reduction in spans of suspended-ceiling supports and decrease in height of partitions to insure rigidity. Diagrams of constructions. Metal Lath Manufacturers Assn., Engineers Bldg., Cleveland 14, Ohio.

2-36. Comparative Costs of Walls, Partitions, and Roofs for School Buildings, 28-p. report prepared to assist in making analysis of relative costs of typical construction systems. Compares: wood-frame construction with masonry and steel-framed buildings; wood finishes with plaster, tile, or brick veneer; and different types of wood framing. Gives building-cost indexes for various regions of country; provides drawings, description, and cost estimate for each system discussed. National Lumber Manufacturers Assn., 1319 18 St., N. W., Washington 6, D. C.

★ **2-37. Typical Designs of Timber Structures** (3rd Ed.), 126-p. reference manual for architects and engineers presenting designs representative of sound wood construction. Features roof-truss designs of most common structural usage, which may be used directly or modified to suit individual requirements. Includes detailed data sheets on pitched, flat, and bowstring trusses; contains information on timber connectors and anchors. Timber Engineering Co., 1319 18 St., N. W., Washington 6, D. C.

2-38. Webrib Concrete-Reinforcing Bars, 70-p. design manual explaining use of deformed-steel reinforcing bars. Gives results of tests performed and outlines advantages of deformed bars. Design data section provides all necessary information for design, including sample problems for beams, slabs, columns, and spread footings. Drawings; charts; specifications. Webrib Steel Corp., 120 Broadway, New York, N. Y. ($2.50)†

(Continued on page 159)

PROGRESSIVE ARCHITECTURE, 430 Park Avenue, New York 22, N. Y.

I should like a copy of each piece of Manufacturers' Literature circled. We request students to send their inquiries directly to the manufacturers.

1-23	2-35	3-28	7-7
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Perlite-concrete design

LIGHTWEIGHT INSULATING FIREPROOF CONCRETE ROOF DECK SPECIFICATION MANUAL—By Dale A. Lehr, 218 pp. Perlite Division, Great Lakes Carbon Corp., 612 So. Flower St., Los Angeles 17, Calif. Limited free distribution.

Building designers will find very useful this new manual on perlite concrete for roof decks, in which, for the first time is taken an authoritative and sound engineering approach to a subject of growing importance. The book contains numerous tables and diagrams of roof construction that simplify design. A looseleaf binder enables supplementary information to be added later, when available.

Perlite aggregate, formed by "popping" a siliceous volcanic rock at 1,500 F, weighs less than one-tenth as much as sand or gravel. It can be used alone as a non-structural insulation fill or mixed with portland cement and water to form a lightweight structural concrete of high insulative value. The book presents data for both types of application.

Design tables in the manual enable a designer to pick out the thickness of roof deck required for various mixes to obtain a desired overall insulation value. The compressive strength of the slab also is given, thus enabling the designer to check the thickness for load-carrying capacity.

The tables give coefficients of heat transfer (U-values) for slabs on permanent forms of various types, on metal lath and on paper-backed wire mesh. The effect of ceilings is taken into account. Accompanying drawings show details of the various types of construction.

Also included in the manual are typical specifications and recommendations for mixing, handling and testing perlite concrete, technical data for subpurlins and a discussion of commonly encountered problems, with suggestions for avoiding or correcting them.

"Engineering News-Record" 6/29/54

This Solid Engineering Information Can Save You Hours on Every Job. *Don't Delay—Write Today* for Information on How to Get Your Copy of the Permalite Roof Deck Manual!

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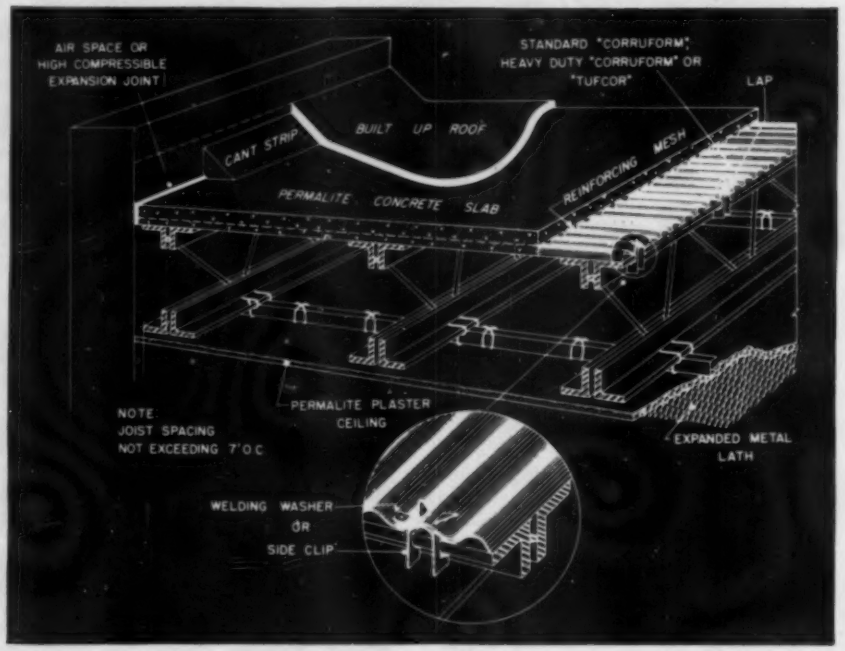

The big, new Permalite Roof Deck Manual gives you, for the first time, *complete, factual, reliable data* on the use of lightweight, insulating concrete in open-web roof deck construction. Leading architects and designers agree that this 220-page volume provides complete engineering information in easy-to-use form . . . all the different roof forms and types of suspended ceilings, with page after page of tables on slab thickness, weights, strengths and U-factors, already worked out for you to make specifying quick, easy and accurate. You can get this authoritative handbook, packed with usable, every-day working information, from the Permalite franchisee serving your area — for his name and address

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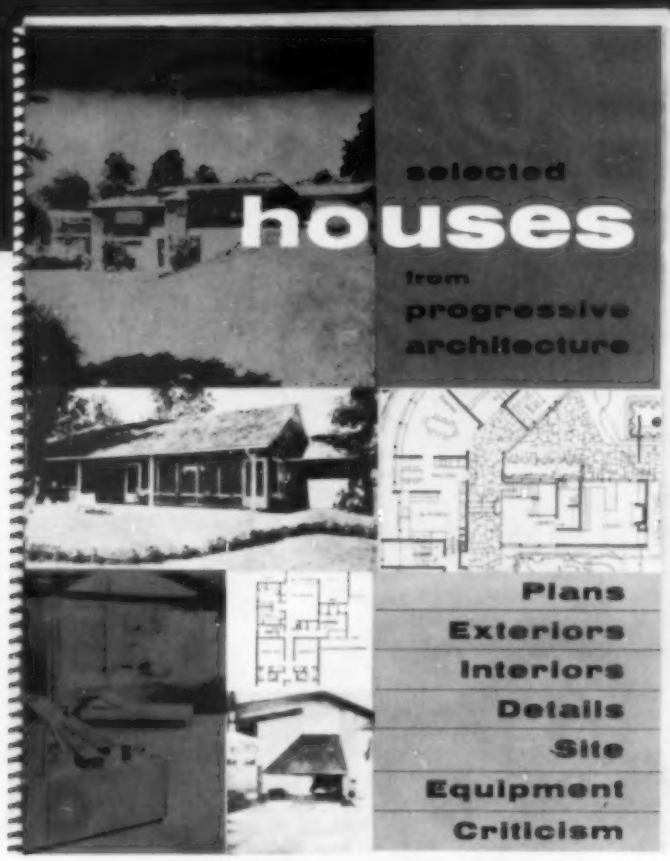

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(Continued from page 156)

doors and windows

3-24. American Top-Lights, 8-p. brochure describing prefab skylight sections constructed of extruded-aluminum frames and selective-light glass blocks. Gives information on rooflights set in concrete grid, stage ventilators, and sash for use with monitor-type roof. Photos; details; dimensions. American 3 Way-Luxfer Prism Co., 51-49 35 St., Long Island City, N. Y.

3-25. Andersen Tracing-Detail File, AIA 16-L, file folder containing 52 pages of detail sheets and six pamphlets on wood window units. Detail sheets cover specification data, stock sizes, and typical sections of casement, gliding, double-hung, or vent-type windows. Pamphlets give general information and photos of actual installations. Also includes booklet explaining how to eliminate condensation. Andersen Corp., Bayport, Minn.

3-26. Kramer Control Hardware, AIA 27-C-1 (BC-1), 8-p. publication on burglarproof hardware for wood sash. Lists features of wood sash with automatic-locking hardware; describes operation of locking device with transoms, projected sash, or casement windows. Photos; diagrams; table of recommended hardware for various window sizes. The Brookman Co., Inc., 2833 Third St., San Francisco 7, Calif.

★ **3-27. Ludman Aluminum Windows, AIA 16-E (AW-55),** 28-p. catalog describing aluminum windows with patented device which insures tight closure. Outlines construction features and operation of windows with standard operator handle or control bar; contains data on weatherstripping, giving results of air-infiltration tests. Details of projected windows, storm sash, and screens; photos of actual installations; specifications and dimensions. Ludman Corp., N. Miami, Fla.

3-28. Panelfold Doors, AIA 16-M, 8-p. pamphlet showing wood accordion-fold doors. Explains operation of doors, providing details of typical head and jamb sections. Contains reproductions of standard colors and wood finishes available; includes specifications, dimensions of doors, and data on stacking space. Panelfold Doors, 4951 E. 10 Court, Hialeah, Fla.

3-29. Plyco Plastic Window Frame, 12-p. brochure illustrating plastic window frames which may be used with wood or metal sash. Features weatherstripped vent unit, fabricated with 3/16" glass panes, requiring no sash frame. Provides drawings, details, dimensions, and specifications. The Plyco Corp., Elkhart Lake, Wis.

3-30. Soss Precision Hinges (50), 36-p. notebook containing information on line of quality hinges, manufactured in wrought steel, wrought bronze, or brass. Describes different kinds of hinges and gives data on selection of proper hinge for type of door and jamb specified. Specification charts, dimensions, and drawings; material on screen-door spring hinges. Henry Soss & Co., 5716 W. 96 St., Los Angeles 45, Calif.

electrical equipment, lighting

4-18. The Progress of Cold-Cathode Lighting, 28-p.

4-19. Comparison of Hot- and Cold-Cathode Installations in Schools, 20-p.

Two handbooks on cold-cathode lighting in schools, including information based on actual installations. Plans and drawings show amount of illumination realized, brightness values, and reflected glare; tables give cost analyses, showing comparisons with other types of lighting. Illuminating Engineering Co., 2347 E. Nine Mile Rd., Hazel Pk., Mich.

4-20. Prescolite Fixtures (9), 20-p. catalog illustrating lighting fixtures. Shows recessed ceiling fixtures, aisle lights, and exit signs; pictures hanging fixtures and bullet-type lamps. Information on finishes available; description of lenses. Prescolite Mfg. Corp., 2229 Fourth St., Berkeley 10, Calif.

(Continued on page 160)

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(Continued from page 159)

4-21. The A B C Plan for School Lighting (B-4556-B), 20-p. booklet outlining basic requirements for school lighting systems. Lists advantages of several different methods of lighting in terms of performance, appearance, economics, and maintenance. Drawings; sample layouts. Westinghouse Electric Corp., 401 Liberty Ave., Box 2278, Pittsburgh 30, Pa.

sanitation, plumbing, water supply

7-6. Bathroom Planning, AIA 29-H (574-3). 28-p. booklet of suggested ideas on bathroom planning. Discusses what homeowner wants in way of multiple-use planning, storage facilities, ventilation, sound control, and illumination. Also includes notes on more economical layout of plumbing. Drawings; sample arrangements; charts of standard dimensions. Plumbing and Radiator Heating Div., American Radiator & Standard Sanitary Corp., New York 18, N. Y.

7-7. Briggs Beautyware, AIA 29-H, 36-p. catalog of plumbing fixtures for residential and institutional installations. Contains data on lavatories for built-in counter tops and cabinet-type kitchen sinks, as well as material on standard plumbing fixtures. Gives drawings, description, and dimensions for each model. Briggs Mfg. Co., Detroit 26, Mich.

7-8. Lustertone Cabinet Sinks, AIA 29-H-6, 8-p. publication containing information on stainless-steel kitchen sinks. Gives drawings and dimensions of sinks, featuring sit-down peninsula sink with standard double bowl and shallow sink for preparation of food. Also contains material on kitchen-counter tops, custom-made in stainless steel or formica bonded to steel. Elkay Mfg. Co., 1874 S. 54 Ave., Chicago 50, Ill.

surfacing materials

9-8. Modern Ideas for an Older Home, 24-p. pamphlet illustrating how an older home can be rearranged to provide more flexible space for contemporary living. Takes sample house, showing by plan, photos, and sketches its inherent possibilities. Analyzes inadequacies in existing layout and suggests methods of solving them. Lists furniture and floor coverings used. Floor Div., Armstrong Cork Co., Lancaster, Pa.

9-9. Gold Seal Floors and Walls (55), 148-p. catalog of patterns available in line of surfacing materials—resilient-tile flooring, corkboard, linoleum for floors, walls, or counter tops. Provides information on adhesive used with each material; gives brief recommendations for selection of surfacing for various floor conditions. Color photos of patterns; installation specifications; instructions for estimating quantities of tile flooring. Congoleum-Nairn Inc., 195 Belgrove Dr., Kearny, N. J.

9-10. Marlite Panels, AIA 23-L (15541), 8-p. circular presenting plastic-finished hardboard panels for walls and ceilings. Also includes information on hollow-core tongue-and-groove hardboard paneling. Drawings and dimensions of molding pieces; color photos of standard finishes, wood textures, and marble patterns. Marsh Wall Products, Inc., Dover, Ohio.

9-11. Ideas Unlimited, 16-p. pamphlet of suggestions for use of clay tile in homes. Color photos and sketches show ideas for using tile in living areas and exteriors, in addition to customary application in kitchens or baths. Also pictured are tile floors and counter tops on built-in cabinets. The Tile Council of America, Rm. 3401, 10 E. 40 St., New York 16, N. Y.

interior furnishings

11-3. Space-Saving Ideas, 8-p. booklet of suggestions for enclosing fold-away beds. Drawings show use in living areas and expansion attic; photos show operation of bed; dimensioned diagrams. Murphy Bed and Kitchen Co., Inc., 19 W. 44 St., New York 36, N. Y.

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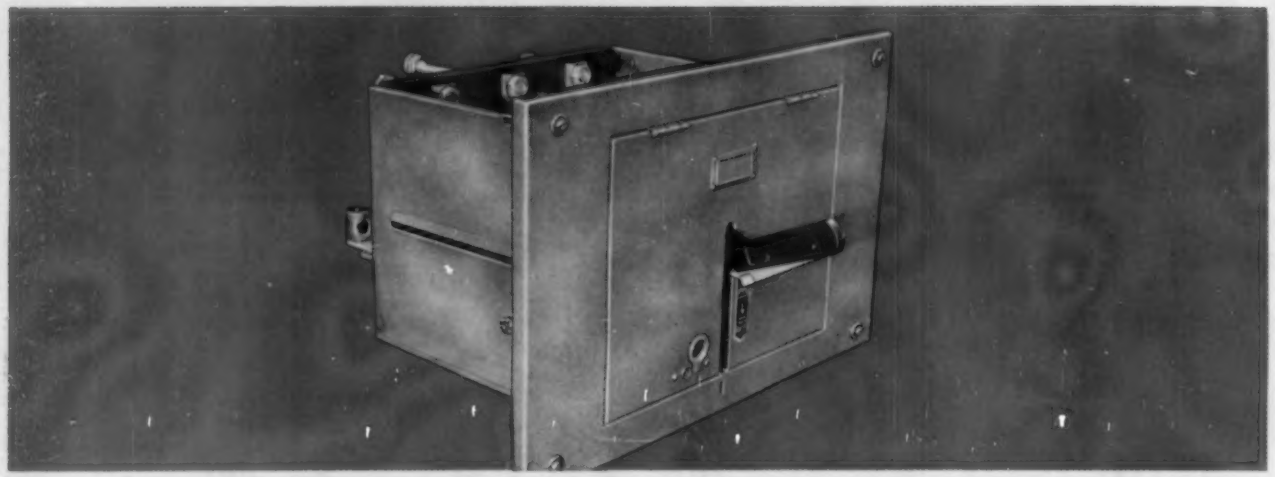

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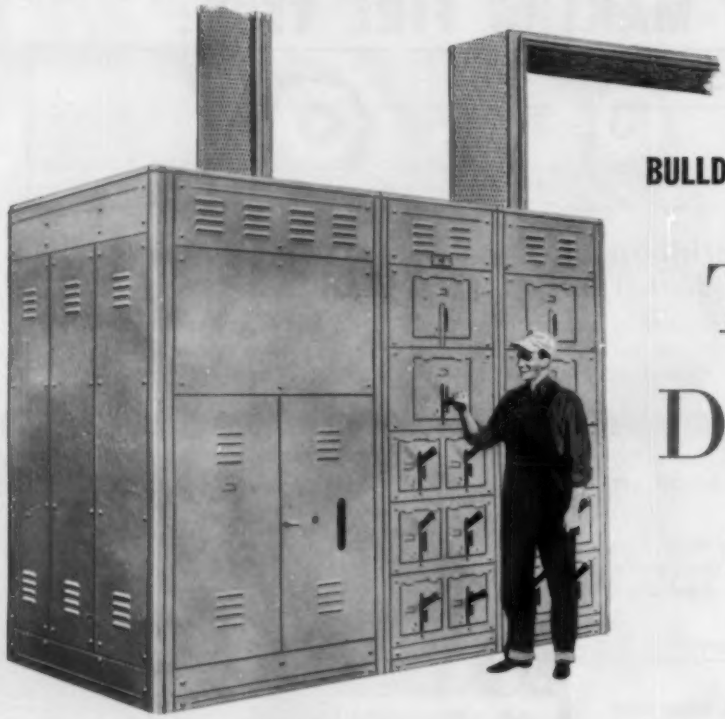

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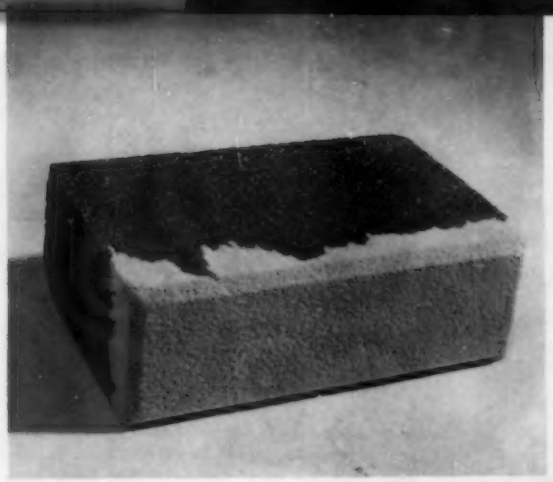
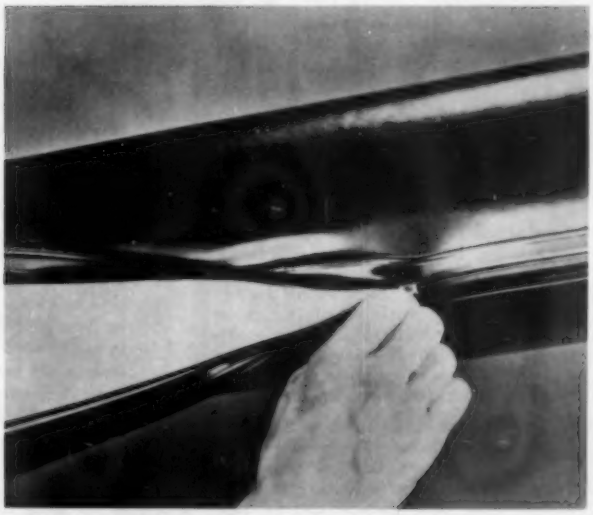


With the use of "Duraface Foamglas," a cellular-glass insulating material combining both insulation and ceramic finish in a single unit, a completely insulated and surface-finished wall can be erected in one operation. Impact tests on the dense surface of the block show that it has about twice the impact resistance of cement-plaster finish. Face dimensions are 12" x 18" and either 3" or 4" thicknesses are available. (Above photo is of sample block and not a standard unit.) *Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22, Pa.*

Reflective Kimsul "48" Sheathing Blanket is being stapled to plywood sheathing (below) *which will then be applied to the exterior side of wall studs. Precut sheets, 49" x 8' 3", are packaged in compressed form; builders report that labor cost of applying new blanket is negligible. Kimberly-Clark Corp., Neenah, Wis.*



Thermal insulation on pipe and ducts can be protected by new-type, prefab Krene plastic cover. Cover is wrapped around insulated pipe and closed by pulling slide fastener which locks preformed edges. End joints are wrapped tightly with Krene tape. Will cover pipes from ½" to 33" in diameter and in lengths up to 100". Miracle Adhesives Corp., 214 E. 53 St., New York 22, N. Y.

Translucent, Bakelite, rigid-vinyl sheet formed in a diamond-shaped corrugation and printed with basic colors (left) *is used in conjunction with fluorescent lamps to bring out the natural color and texture of foods, textiles, clothing, furnishings, cosmetics, decorative materials, etc. Reducing glare while maintaining natural color, these Quantalite shields permit any desired quantity of illumination without irritating occupants' eyes. Produced in shapes and sizes to fit all standard fixtures and luminous ceilings. Quantalite Inc., 101 Park Ave., New York 17, N. Y.*

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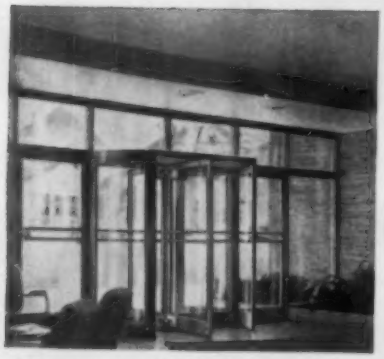

New International Stainless Steel Revolving Door Entrance at General Fireproofing Company, Youngstown, Ohio. Kling and Frost, Youngstown, Ohio: Architects

conducted in as many different entrances, best show how revolving doors assure big savings on cleaning and redecorating costs. In all buildings but those with revolving door entrances . . . whether a one-story taxpayer or a multi-story skyscraper . . . the inrush of outside air was always at least *40 times greater.*

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INTERNATIONAL STEEL COMPANY

p/a products

(Continued from page 163)

air and temperature control

Wethertron Heat Pumps: new line of packaged, air-source, heat pumps feature improved performance, lower cost, and more compact size than earlier models. Using only air and electricity for fuel, unit extracts heat from outdoors in winter, and in summer automatically reverses procedure to pump warm air from home to outdoors. Model 44C will heat or cool 6- to 8-room house; model 66C will condition 7- to 9-room home. Units measure 29″ x 48″ x 74″. Weathertron Dept., General Electric Co., Bloomfield, N. J.

Area and Crackage Calculator: vinyl-plastic device operates similarly to slide rule, but gives readings in tabular form. Of use to architects and engineers in figuring heat losses, calculator may be employed to find areas of floors, walls, ceilings, and windows, along with lineal ft of crack. Paul S. Morton Engineering Service, 609 Bangor Rd., Lawrence, Mich.

Remote "Marvair" Air Conditioner: unit meeting need for low-cost, quiet, powerful performance also satisfies detailed requirements of FHA and VA. Conditioner may be used with any forced-air furnace and can even be connected to perimeter-heating system, providing summer air conditioning through existing perimeter ductwork. Condenser may be located as far as 60′ from rest of system to utilize space in garage, attic, or basement. Three-ton unit will cool home up to 2000 sq ft in area. Marvair Div., Muncie Gear Works, Inc., Muncie, Ind.

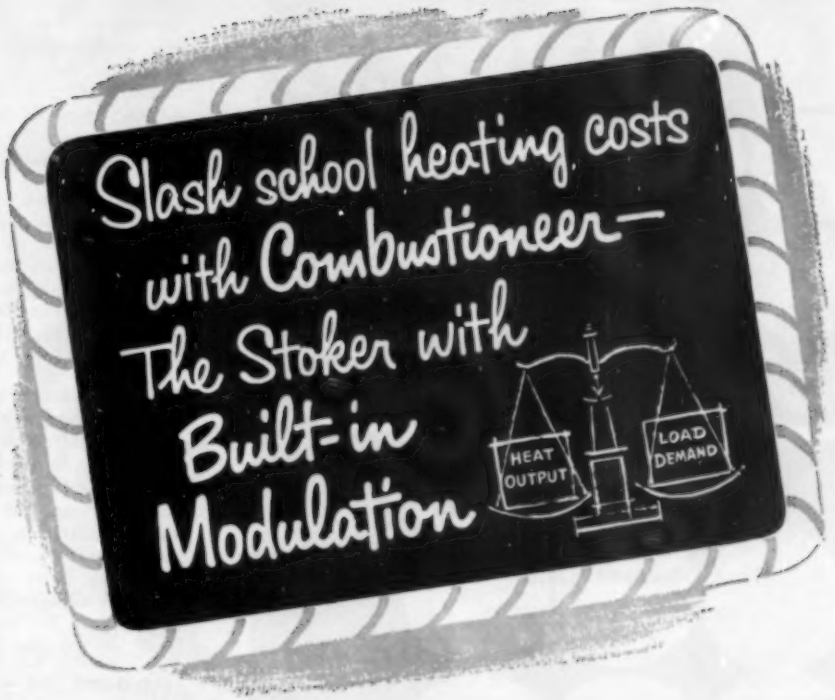
Combination Air-Conditioning Units: new series of air conditioners for year-round temperature control are now available in 24 sizes. Suitable for new construction or existing buildings, units may be had in 2- or 3-ton capacity, air or water cooled, to be fired by gas or oil. All elements of system are housed in one cabinet of heavy-gage steel construction; outputs range from 85,000 to 130,000 Btu. Shana Mfg., Inc., 188 W. Randolph St., Chicago 1, Ill.

Percoflash Air-Conditioning System: centralized heating and cooling system, operating on forced water, features individual room controls. Recessed units, measuring 17¾″ x 14″ x 4¾″, circulate and filter air in each room at desired speed. System may be installed in any size or type of building. Percoflash Ru Div., Westcott-Alexander, Inc., Madison, N. J.

construction

Dor-Win Frame Seal: metal casing eliminates need for heavy wood casing and trim around window or door frames. Frame seal has wide flange for nailing to studs and groove to anchor rock lath; perforated strip provides rigid ground for plaster. Fabricated of steel, electrocoated with zinc; available in standard precut lengths. Dor-

(Continued on page 166)



BURN COAL—

Save Fuel, Save Time, Save Money!

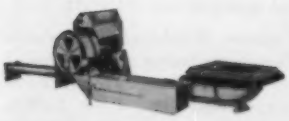
COMBUSTIONEER'S MODULATION automatically feeds coal and air to the fire at *variable* rates to meet load requirements, starting slowly, accelerating, tapering off, or stopping as the load demand changes. This levels off peaks and valleys in feeding, prevents over-firing and waste of coal!

Combustioneer Modulation can be obtained at savings up to $500 per stoker over other makes.

Furthermore, Combustioneer's agitating transmission and automatic respirator assure maximum combustion efficiency and smoke-free stacks. Heat output is always balanced with load demand.

Combustioneer Hopper and Bin-Feed Models range in capacity from 9 to 1000 lbs. per hour. They are precision made, rugged, giving long life in hard service.

Write today for Heating Manual giving complete data and specifications



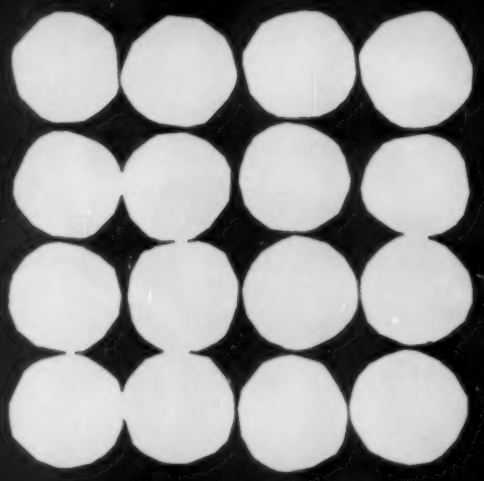
Bin-Feed Model No. 15

Hopper Model No. 50

COMBUSTIONEER DIVISION
THE STEEL PRODUCTS ENGINEERING COMPANY
1235 West Columbia Street, Springfield, Ohio

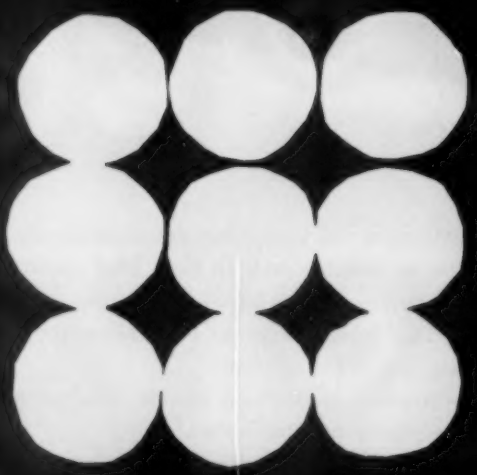
Combustioneer®

GAS BURNERS • HIGH AND LOW PRESSURE OIL BURNERS
OIL FURNACES • STOKERS • HUMIDIFIERS



the old way

the gotham way



Because of its wider angle of illumination,

a complete ceiling of gotham's recessed downlites*

need fewer units than any other recessed

Alzak reflector-type downlite.

for data, write:

GOTHAM LIGHTING CORPORATION

37-01 thirty-first street

long island city 1, new york

*units 801, 811, 821, 831

p/a products

(Continued from page 164)

Win Frame Seal Co., 710 W. Rockside Rd., Cleveland 9, Ohio.

Kwik-Fit Door Frame: steel door frame is designed for installation over drywall construction. Frame allows greater economy in time and materials since only four nails are needed and there are no rough edges to be finished off. Manufactured of zinc-coated steel, bonderized for good paint adhesion; available for use with 2″ x 4″ stud partitions and ½″ drywall, for all sizes of 1⅜″ doors. Kewanee Mfg. Co., Kewanee, Ill.

"Filon" Plastic Panel: improvement in translucent building panels is addition of Nylon strands to glass-fiber reinforcing. Combination of fibers gives more rigidity and substantially greater strength. Produced in 20 colors, crinkled or smooth finish, 6- or 8-oz weight. Plexolite Corp., 270 Park Ave., New York 17, N. Y.

Metalset A201 Putty: compound formulated of epoxy plastic and aluminum hardens to metallic density at room temperature. Putty may be used on wood or metal surfaces for calking and patching; after hardening it may be machined, tapped, or drilled. Since no evaporative solvents are used, there is almost no shrinkage nor cracking; putty is unaffected by water, acids, or alkalies. Smooth-On Mfg. Co., Jersey City, N. J.

doors and windows

Multi-Purpose Window: versatile units may be installed as awning windows, hopper vents, or casements, in any desired combination. Windows come completely factory assembled with all sash hardware attached; when furnished as vents, inside self-storing screens are included. Two of these units satisfy FHA requirements for 10′ x 12′ room; window measures 44″ wide x 28″ high. Rolscreen Co., Pella, Iowa.

Slide-O-Ramic Aluminum Window: horizontal-sliding window units are especially suitable for housing projects and apartments. Glazed with plastic, in 2- or 3-light models, movable sash rides on stainless-steel spring-loading tracks. Units are designed for easy installation with continuous head jamb and sill fin; aluminum snap-on trim is optional. Fabricated for use with separate screens and storm sash or in triple-track style to accommodate sliding screens and storm sash. Wisco Aluminum Corp., 3945 "A" St., Detroit 16, Mich.

electrical equipment, lighting

Paraflector Louver: developed for use with recessed troffers, new louver's high "visual comfort index" is achieved by parabolic design and precision-rolled cross baffles. Aluminum baffles, providing 35° crosswise and 25° lengthwise lamp shielding, are designed for low brightness and excellent diffusion. Edwin F. Guth Co., 2615 Washington Blvd., St. Louis, Mo.

(Continued on page 168)

A QUALITY PRODUCT BY REVERE U.S.A.
COPPER BRASS
1801
ALUMINUM
16 oz. C. R.
Now
For the first time you can tell, at a glance, that you are getting the exact copper you specify!

ALL STANDARD SIZES OF

REVERE

SHEET, STRIP AND ROLL COPPER
now come marked with gauge and temper

Effective with current production each sheet or strip of Revere Copper will be marked as to gauge and temper. All coils of Revere Copper will be marked on the outer copper wrap. Sample marking (actual size) is shown above. These markings also apply to LEADTEX, Revere's Lead-Coated Copper. The ink used for marking is water-soluble so that it is readily removed by a damp cloth or by water alone.

Now, you can be sure, at a glance, what gauge and temper copper you are getting, when you specify Revere. Also included is the Revere Seal (shown above) which identifies the manufacturing source of the copper as American. This seal and the line, "A QUALITY PRODUCT BY REVERE U.S.A." also appears on all shipping cases.

So in order to make sure that you get the gauge and temper of copper you specify, make certain the sheet, strip and roll copper you order, or use, bears the Revere stamp.

REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.

* * *

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N.Y.
Sales Offices in Principal Cities, Distributors Everywhere.

One-half actual size

men and machines move safely over • LOW-COST • LONG-LASTING

A.W. SUPER-DIAMOND

Rolled Steel Floor Plate

Where safety and economy are "musts"—no other floor plate can match SUPER-DIAMOND's rolled steel ruggedness and easy maintenance for so low a cost.

At every step 40 steel diamonds guard constantly against skids and slips. This non-directional pattern floor plate fabricates easily . . . can be installed overnight . . . gives years of dependable safety under the heaviest industrial loads.

Mail coupon for full details on this low-cost, long-lasting rolled steel floor plate.

A.W. SUPER-DIAMOND ROLLED STEEL FLOOR PLATE

"The diamond in the rough . . . a gem of a flooring."

ALAN WOOD STEEL COMPANY
Conshohocken, Pa.

Please send A.W. SUPER-DIAMOND Booklet SD-33

Name_____

Title_____

Company_____

Address_____

City_____ Zone_____ State_____

Other products: A.W. ALGRIP Abrasive Rolled Steel Floor Plate—Plates—Sheets—Strip—(Alloy and Special Grades)

For plants where oil, water and grease raise special problems of slipping accidents, we suggest a check on the special qualities of A.W. ALGRIP . . . the world's only abrasive rolled steel flooring.

A.W.

p/a products

(Continued from page 166)

Tap-Lite Wall Switch: new wall switch is styled by designer Henry Dreyfuss. One actuator button turns lights on or off; flush plastic plate is attached by spring clips so that no screw heads show on surface. Home Products Div., Minneapolis-Honeywell Regulator Co., 2753 Fourth Ave., S., Minneapolis 8, Minn.

finishers, protectors

"Miracle Plastic" Flat Paint: vinyl interior finish covers drywall construction with one coat. Paint may be rolled or brushed on any interior surface; scuffed or damaged areas can be retouched without noticeable difference in color or sheen. Available in flat, decorator colors, odorless paint dries in 30 minutes. Baltimore Paint and Color Works, Inc., 150 S. Calvert Rd., Baltimore, Md.

Perma-Skin Epoxy Coatings: plastic coatings with unusually good adhesive qualities are recommended for surfaces exposed to abrasion, alkalies, acids, or solvents. Film may be applied by spray, brush, or roller to concrete and most metals; special primer, incorporating rust inhibitors, is available for additional protection. Dennis Chemical Co., 2701 Papin St., St. Louis 3, Mo.

insulation (thermal, acoustical)

Poly-Cell Insulation: resinous-liquid insulation, sprayed on like paint, immediately foams to 20 times original thickness. Material will adhere to almost any type of surface and simplifies insulation of irregular shapes. Building costs may be cut substantially by using spray-type vapor barrier directly on insulation. May be applied at temperatures ranging from minus 40 F to 225 F; K-factor—0.24, weight—2 lb per cu ft. Insul-Mastic Corp. of America, 1141 Oliver Bldg., Pittsburgh 22, Pa.

Fiberglas Industrial-Building Insulation: hardboard faced with glass-fiber mat provides thermal and acoustical insulation for roofs or walls. Designed for use with cement-asbestos board or metal sheets, insulation board is strong enough to span purlins without deflection. Available in 24″ widths, lengths up to 96″, 1″ to 2½″ thick; K-value —0.25, noise-reduction coefficient—.75 for 1″ board. Owens-Corning Fiberglas Corp., Toledo 1, Ohio.

sanitation, plumbing, water supply

Hot'N Cold Water Cooler: designed to eliminate time losses due to coffee breaks, new water cooler also serves water at proper temperature for making tea or instant coffee. Heating element and hot-water storage tank are fully insulated from chilled-water section. Unit measuring 43⅜″ high x 15¼″ wide x 15½″ deep serves 45 to 55 cups per hr at 160 F and 120 cups per hr of drinking water at 50 F. Kelvinator Water Coolers, Columbus 13, Ohio.

It's so easy to build with VIBRAPAC BLOCK

VIBRAPAC Block has become a first class building material when laid up with accurately tooled mortar joints for beautiful horizontal and vertical effects.

Note the beauty created with the use of VIBRAPAC made window sill block, sash jamb block and bull-nose corners.

With VIBRAPAC Block, it's so easy to build small closet space and interesting patterns of short walls, using stacked bond coursing.

MODULAR SIZES *make everything* FIT!

You avoid cutting and fitting, in many details of construction, when you build with VIBRAPAC Block. Their modular dimensioning coordinates with other modular building elements. Door and window openings, for instance, come out right for standard framing. No wasted time fitting door and window frames into openings. By eliminating block cutting and fitting, building costs are materially reduced.

Almost unlimited opportunities for creative architecture and structural versatility are provided by VIBRAPAC Block. Building code requirements are easily met . . . ruggedness with substantial structural loads . . . fire-safety . . . high insulation values. Write to us for name and address of nearest plant producing VIBRAPAC Block of highest quality.

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BOX 177 • ALPENA, MICHIGAN, U. S. A.

Complete Equipment for Concrete Block Plants

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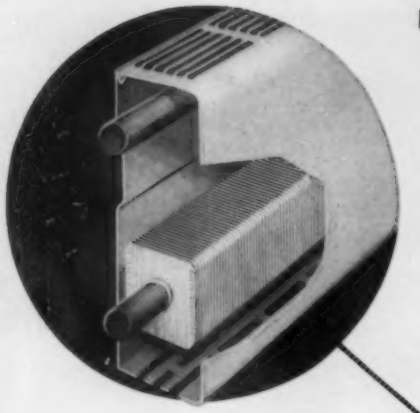
a new major advancement...

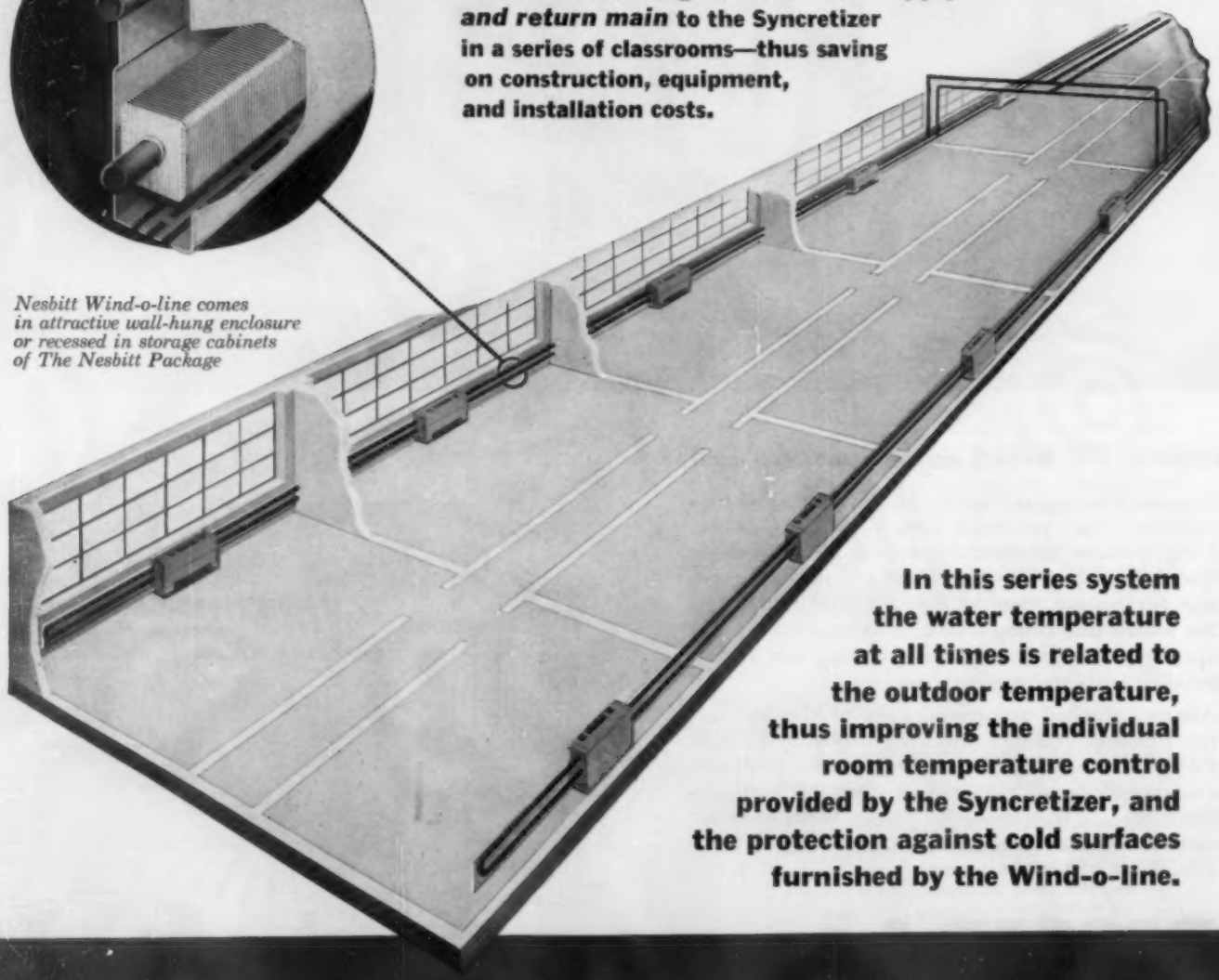
Nesbitt

SERIES HOT WATER



Nesbitt Wind-o-line comes in attractive wall-hung enclosure or recessed in storage cabinets of The Nesbitt Package

Nesbitt Syncretizers and Wind-o-line may now be combined in a forced hot water heating and ventilating system in which the *Wind-o-line tubing becomes the supply and return main* to the Syncretizer in a series of classrooms—thus saving on construction, equipment, and installation costs.



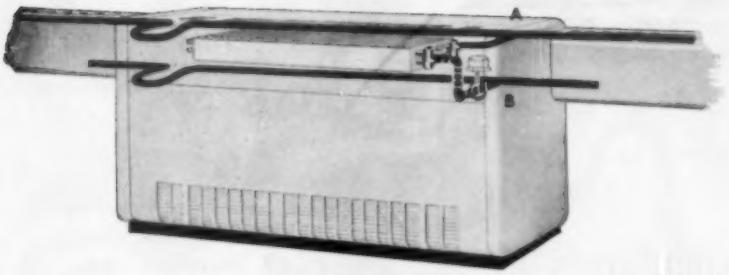
In this series system the water temperature at all times is related to the outdoor temperature, thus improving the individual room temperature control provided by the Syncretizer, and the protection against cold surfaces furnished by the Wind-o-line.

Telephone, wire, or write today for more information:

school mechanical system costs **reduced**

classroom comfort and protection **increased**

WIND·O·LINE SYSTEM



Packaged piping reduces installation cost. (a) Crossover return tubing, expansion loop, and air vent fitting come pre-assembled and connected to the heating element. (b) Crossover supply tubing, expansion loop, and balancing valve are furnished installed, leaving a minimum of piping at the site.

IF YOU are interested in school construction costs, it will pay you to study how this latest Nesbitt development meets today's needs and gives more for the school-building dollar.

In forced hot water applications Nesbitt Syncretizer heating and ventilating units with Wind-o-line radiation may be installed in series-loop circuits, in which the copper tubing of the Wind-o-line system serves as the only required supply and return piping for multiple-classroom groupings or entire wings.

COSTS REDUCED *Savings in equipment:* Smaller pipes and pumps are required because the Nesbitt System is designed to provide the needed heating capacity with water quantities of from one half to one third those required in conventional systems. Saves on both first cost and operating cost.

Savings in construction: Wind-o-line supplies Syncretizers, eliminating costly pipe trenches, mains, runouts and pipe covering in much of the building. Other piping is simplified.

Savings in installation: Mains and piping are smaller, shorter, simpler. Packaged piping within the Nesbitt Syncretizer unit ventilator reduces installation labor at the site. See above.

COMFORT INCREASED *Variable water temperature control:* Relating the available heat directly to outdoor temperatures improves the control of individual room temperature by the Syncretizer.

Improved cold surface protection: Because the system water temperature increases as outside temperature falls, Wind-o-line protection against cold window downdraft and bodily heat loss is continuously related to actual needs.

Off-time temperature maintenance: Without additional investment in equipment, the Nesbitt System maintains safe basic building temperatures during overnight, holiday, week-end shutdowns.

at no extra cost to you:

Nesbitt schoolroom equipment

upgraded

new hardtop sunboard

Durable laminated plastic, resists cracking, chipping, and abrasion. Easy to clean. Available in five decorative colors.

new attractive colors

Nesbitt Syncretizers, Storage Cabinets, Wind-o-line, and Sill-line Radiation are now available in six harmonious colors.

new shallow wall box

A new Nesbitt air intake (2⅛" deep) is suitable for either prefab panel or masonry walls. Its vertical louvres provide better elimination of air-borne water than wall boxes of conventional design. Shown below.

Made and sold by John J. Nesbitt, Inc., Philadelphia 36, Pa. — Sold also by American Blower Corporation

Wheaton, Maryland
Shopping Center

Architect: John Hans Graham and Assoc., Washington, D. C. General Contractor: George C. Martin Co.

9-value Tectum® roofs in million dollar value center

A noncombustible two-inch Tectum roof deck, the exposed underside painted to specifications, shelters shoppers as they purchase high value at low cost in this million dollar co-op shopping center.

Customers will enjoy year round shopping comfort at less cost because of Tectum's high insulating properties. At least 70% of all harsh noises will be absorbed.

For years ahead, the rest of Tectum's nine values will contribute to safety, strength, and minimum upkeep. With an ultimate live load of 200 lbs. p.s.f., and greater stability than most building materials, Tectum weighs approximately 2 lbs. per board foot, is easily workable with hand tools, has a self-decorative texture, and is termite and fungus proof.

See It Now! Ask for 1955 Technical Data, or refer to Section 2e/Te, Sweet's Architectural File.

Tectum® Div.
The Alliance Manufacturing Company
NEWARK, OHIO

TECTUM DIV.
100 South Sixth Street, Newark, Ohio

_____ Please send Technical Data

Name _____ Title _____

Address _____

City _____ Zone ___ State _____

out of school

by Carl Feiss

We are presenting this month one of the most important articles it has been our privilege to publish in this column. At our request, Fred L. Markham, AIA, President of the National Council of Architectural Registration Boards and a member of the Committee on Education of the AIA, has prepared comments on the new NCARB syllabus and important information on the activities of the National Council. Readers of this column will recognize not only the great value of the following statement, the first of its kind, but they will also recognize that the Council under its thoughtful leadership is destined to play a vital role in the entire concept of architectural education. The questions listed here are ones which must be answered by the profession and by educators. They are not easy to answer. It would be well worth the while of every local chapter of the AIA to devote at least one evening to these questions and for them to be debated at the faculty meetings of the schools. C.F.

Examination for Practice
The NCARB

Fred L. Markham, AIA

The Report of the Commission for the Survey of Education and Registration of the AIA included several recommendations applicable to ACSA, NAAB, and NCARB. Each organization is expected to utilize these recommendations to assist in improving and advancing the program of education, registration, and ultimately the practice of the profession.

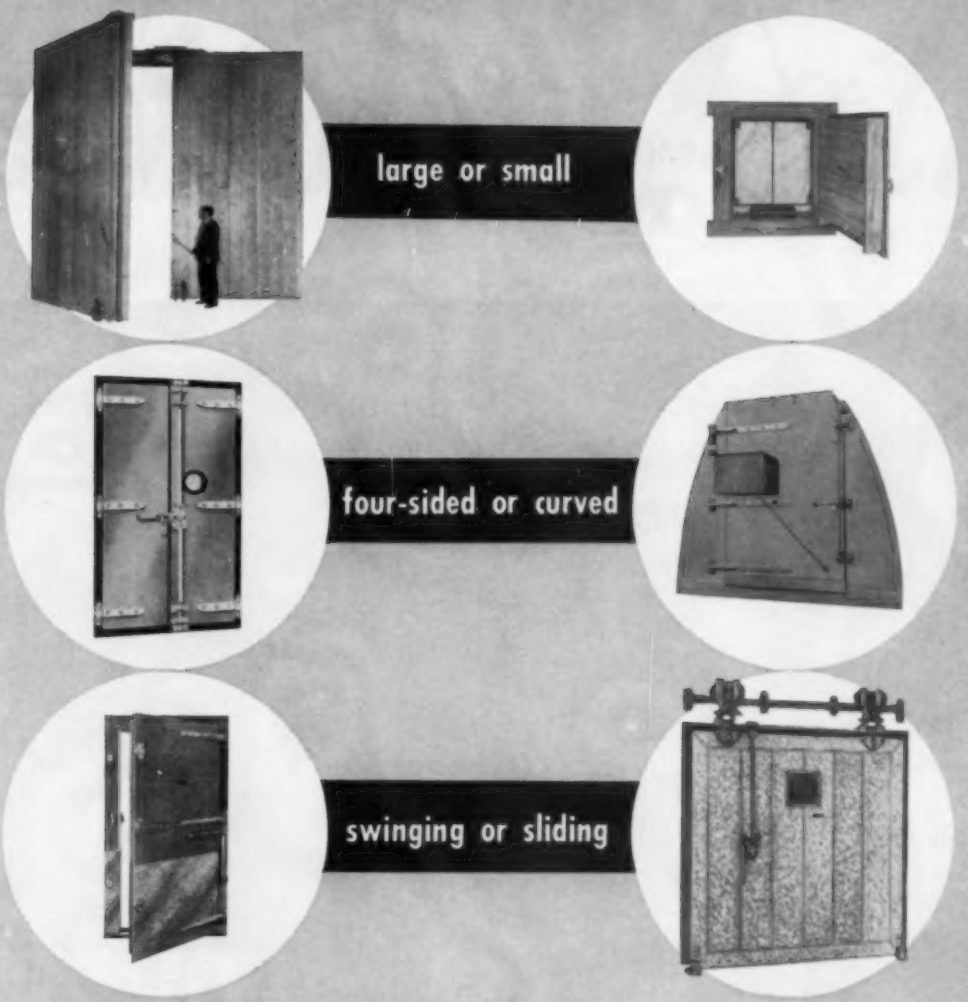
Each body should not anticipate or seek a fully complete, comprehensive, and closed program of its own. The program of each should be flexible and directly related in principle to the others: the curriculum of the schools; the syllabus of the Council; the accrediting procedure of the NAAB.

With this pliability however, there should not be lost the need for fixing clearly in the minds of practitioners, examiners, teachers, and students, certain essentials which constitute for our time and place the distinguishing characteristics—in disciplines, logic, pertinent information, historical background, techniques, and clearly defined ethical standards—of the practice of the profession of architecture.

A start was made in the commission

(Continued on page 178)

Whatever a Plant Door Must Be...



JAMISON Will Build It

When structural or plant operating problems call for unusual doors, the most effective and trouble-saving solution is a Jamison Engineered Door. Perhaps you need a door that's unusual in size, shape, or the way it opens. Maybe the door must be engineered for unusual service conditions. Whatever the problem, Jamison brings to it solution-minded research, engineering, and production... plus more than 50 years' experience in developing cold storage and other special-purpose doors. Send the coupon now for specific information.

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engineered doors

For 50 years the leading builder of cold storage doors

ENGINEERED DOOR DIVISION
JAMISON Cold Storage DOOR COMPANY
HAGERSTOWN, MD., U.S.A.

Without obligation, I'd like your recommendations on a door that must_____

_____

_____

Name_____ Title_____

Company_____

Address_____

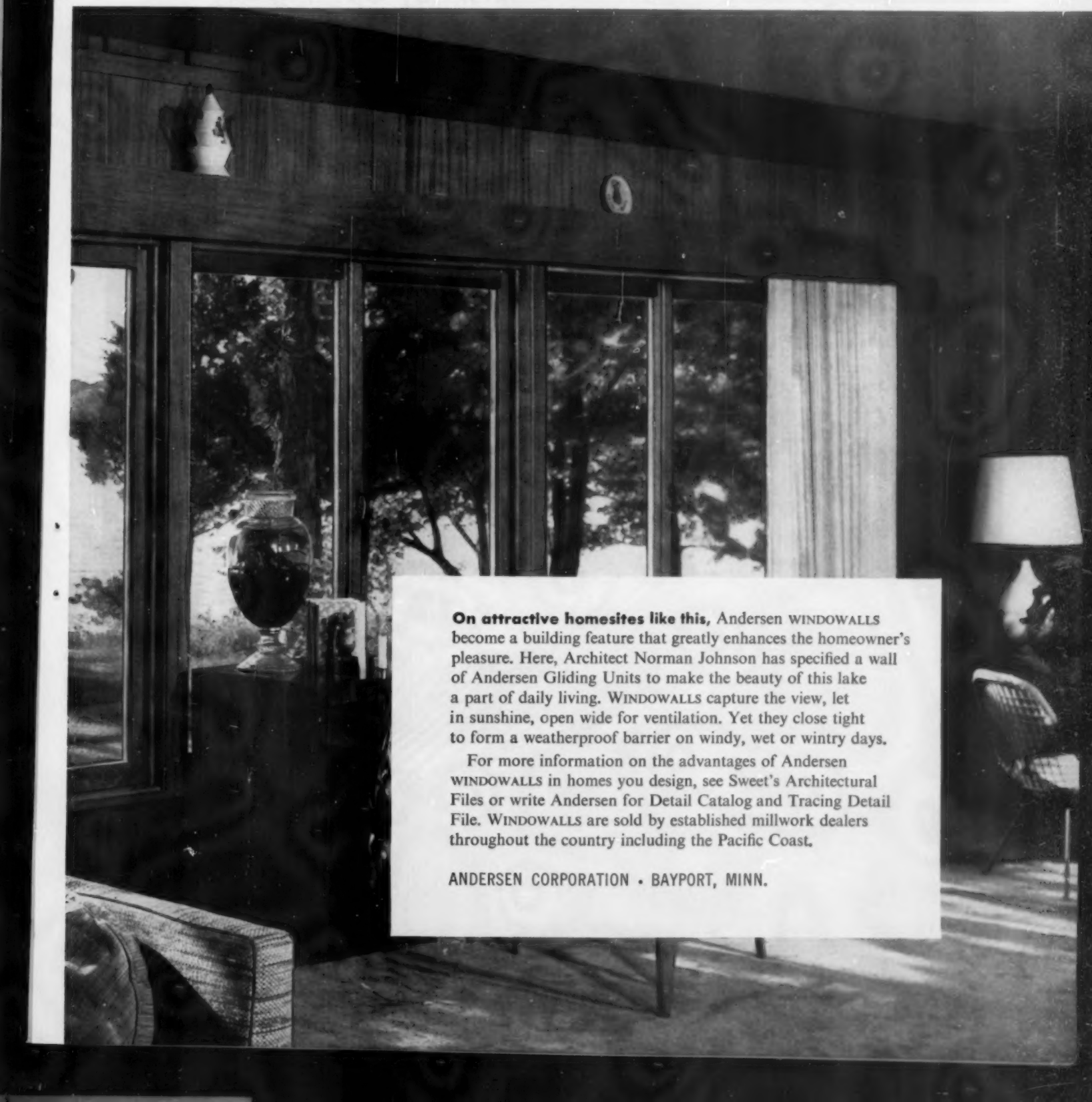
HOW TO OPEN UP A HOME

Andersen

TO OUTDOOR LIGHT AND BEAUTY

Windowalls

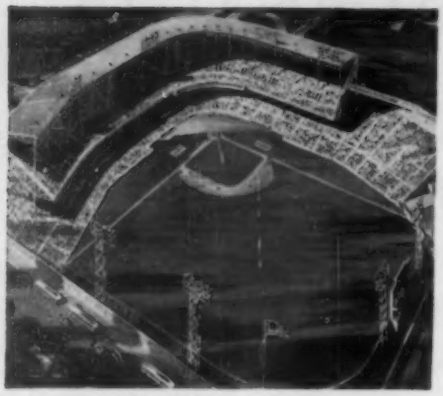
TRADEMARK OF ANDERSEN CORPORATION



On attractive homesites like this, Andersen WINDOWALLS become a building feature that greatly enhances the homeowner's pleasure. Here, Architect Norman Johnson has specified a wall of Andersen Gliding Units to make the beauty of this lake a part of daily living. WINDOWALLS capture the view, let in sunshine, open wide for ventilation. Yet they close tight to form a weatherproof barrier on windy, wet or wintry days.

For more information on the advantages of Andersen WINDOWALLS in homes you design, see Sweet's Architectural Files or write Andersen for Detail Catalog and Tracing Detail File. WINDOWALLS are sold by established millwork dealers throughout the country including the Pacific Coast.

ANDERSEN CORPORATION • BAYPORT, MINN.



Kansas City Municipal Stadium
Architect: *H. L. Wagner and Associates, Kansas City, Mo.* • Engineer: *Victor Mayper, New York, N. Y.* • Consulting Engineer; *S. J. Callahan, Kansas City, Mo.* • Contractor: *Webb-Winn-Senter, Kansas City, Missouri.* (This is a joint venture between *Del E. Webb Construction Co., Phoenix, Ariz.,* and *Winn-Senter Construction Co., Kansas City, Mo.*)

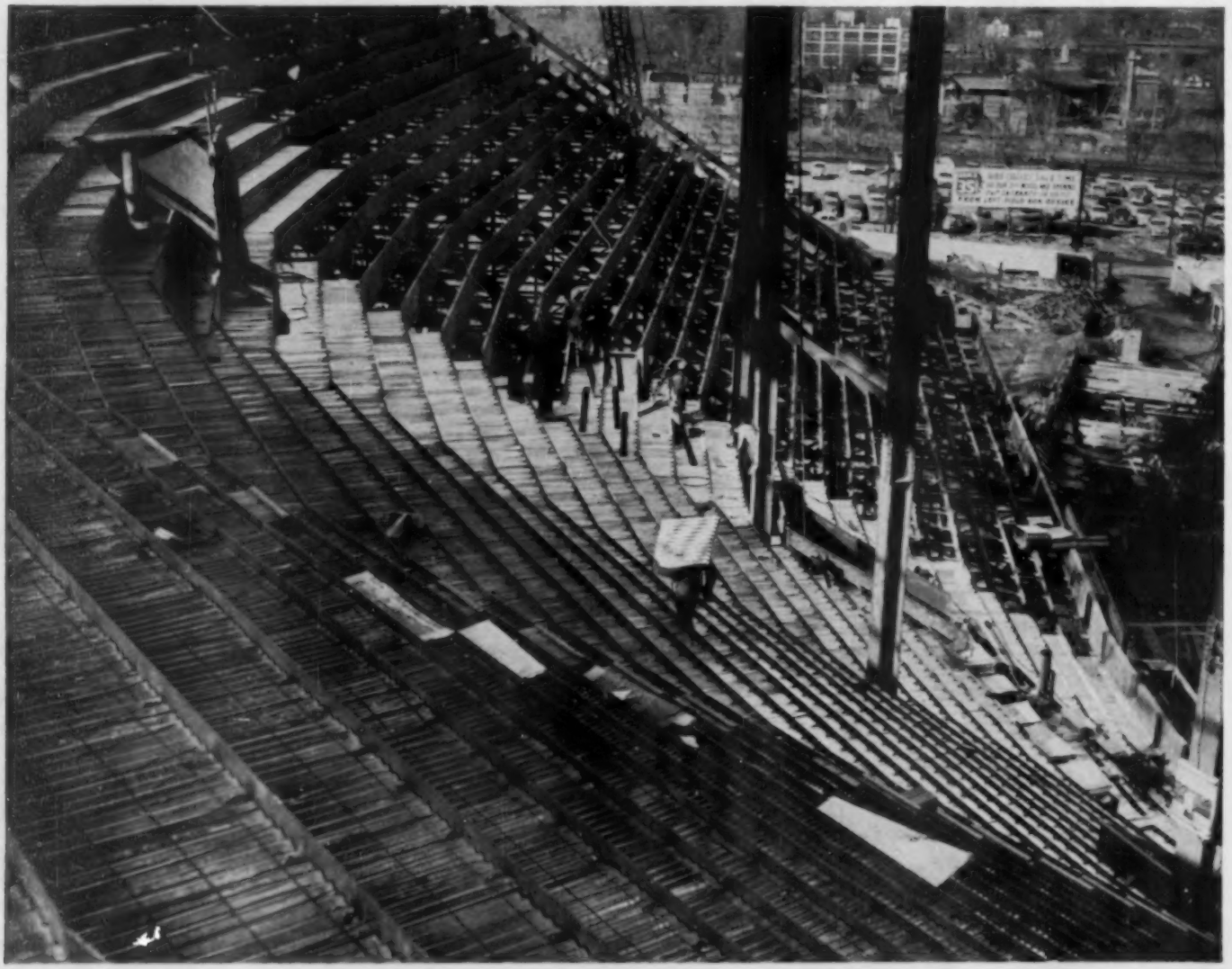
Placing of Corruform precedes concrete placement in partly finished upper deck. Nearly 70,000 sq. ft. of time-saving Corruform sheets were welded to risers to form second-deck floors for the enlarged stadium.

K.C.'s First Big

COFAR,® ROOF DECK & CORRUFORM® Help K.C. Win 96-Day Race to Rebuild Baseball Stadium by Opening Day

JOB: Start Jan. 6, 1955, and rush rebuild a 17,000-seat single-deck stadium to a 34,000-seat double-deck stadium meeting American League standards by Opening Day, April 12, 1955—a period of 96 days.

SOLUTION: CORRUFORM to form floors between risers . . . and on back walls of press boxes; ROOF DECK over office, concourse, press boxes, back-seat row in upper deck; COFAR on ramps and office and concourse floors.



League Win!

RESULT: "We had to guarantee the American League a stadium that meets Big League specifications and have it ready to play baseball April 12. Thanks to Cofar and Corruform, we will meet the deadline and stay within our budget as well."

J. L. Neville, *Project Engineer*

"Each hour was important on this job. We couldn't have done it without Cofar, Roof Deck and Corruform. They're perfect from every angle—speed of construction, strong working platform, economy. I've never seen construction go faster."

Arthur Row, *General Superintendent*

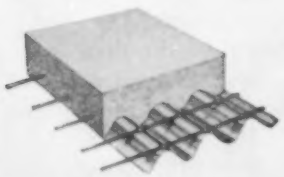
"Corruform, Roof Deck and Cofar are the finest products for this type project. Cofar saved a great deal of time and money by eliminating forms and stripping. Also, Cofar gave us clear working area below because we did not need temporary supports."

Fred Kuentz, *Project Manager*

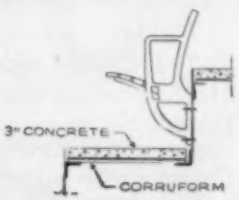
Cofar for Concourse Floors. Webb-Winn-Senter speeded the casting of concrete floors by using Cofar which acts as a deck for workmen, a form for wet concrete, and as reinforcing when the slab sets.

Corruform between Risers. The 100,000 psi steel made both concrete base and working platform, kept laying crews well ahead of concreting. Hot-dip galvanized Corruform was vinyl primed for painting.

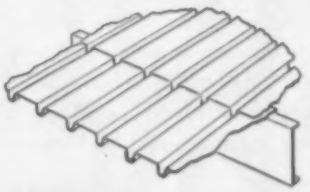
Granco Steel Roof Deck formed concourse roof and decorative curtain wall behind upper-deck rear seats. Wide sheets meant fewer laps, greater roof strength and safety, time saved in placing and welding.



Cofar is extra-strong, cold-reduced, hot-dip galvanized steel. It makes a tight form for wet concrete, provides full positive reinforcing. Welded transverse wires give full temperature reinforcing plus mechanical anchorage between concrete and steel.



Corruform forms tight, solid base for wet concrete, gives a definite concrete saving at no sacrifice to slab design. Corruform remains in place, eliminates the nearly impossible job of stripping. Mesh laid over high-tensile steel sheets reinforces slabs.



Granco Roof Deck is rotary-press formed steel with baked-on, rust-resistant alkyd finish. Each sheet is shaped for maximum strength and perfect nesting, covers 25 to 35 sq. ft. for fast placement, has 28¾" width to reduce laps to a minimum.

GRANCO STEEL PRODUCTS CO.

A Subsidiary of GRANITE CITY STEEL COMPANY

Main Office: Granite City, Illinois • Distributors in principal cities

see our catalog in S or write for copy

(Continued from page 172)

report to outline such characteristics. Presently and from time to time the re-evaluation of this list may be a worthwhile and definitive task of the AIA Committee on Education. Such statements can be of great value to Boards of Examiners in stimulating and guiding their interpretation of professional standards as these are established through the content of state examinations. They should suggest to the schools the core of the subject matter to be incorporated into the curriculum.

Despite the need felt by the schools that they must anticipate the professional thinking and practice of 10 to 20 years hence (and with this point of view of the educators I am in sympathy), they must recognize the insistent presence of those fundamentals of practice, the elements constituting competence, which characterize architectural practice over relatively long periods. These must penetrate and form the great body of content for curriculum and examinations alike.

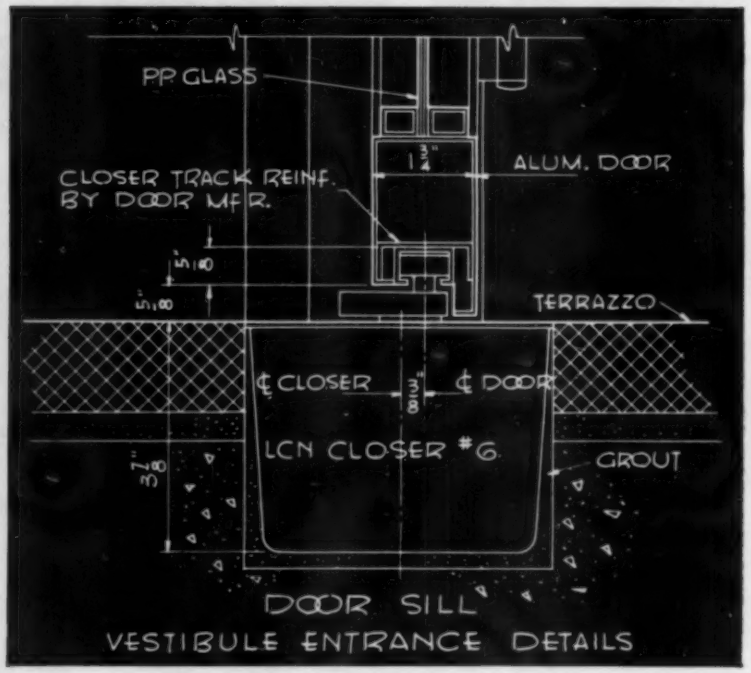
What are these "elements which constitute professional competence"?

To many this question is academic, but to the members of State Examining Boards it is a very real problem. While the practicing architect or student of architecture may, from intellectual curiosity or for pleasure, examine the many ramifications of such a question, the Board member, consciously or subconsciously must answer it in detail. Without formally phrasing an answer he incorporates his analysis of professional attributes into the examination he prepares. As he writes or approves examination questions his response is often automatic, but automatic or carefully studied, what is of real import is that his board membership gives legal sanction to that response.

Very soon after the NCARB was organized it became evident that one task which such a national body could accomplish was to formulate a statement of the qualities, abilities, techniques, knowledge, etc., peculiar to architecture. This was accomplished in the 1930s and has been known since as Examination Syllabus No. 3. It has served as a guide over the years in establishing the content of the licensing examinations. In addition, it set forth in brief outline the qualifications which should be possessed by a candidate to admit him to examination, as well as a standardized grading procedure that has done much to unify examination procedure among the states.

The years leading to 1950, filled with re-evaluation in design, revolution in architectural education, and a highly stimulated confusion among the profession generally, have evolved the necessity of restating the content of Syllabus No. 3. The determination to rewrite this document was made, in the annual convention of 1950, an event concurrent with the appointment of the AIA Commission for the Survey Education and Registration. Its final preparation and publication as Syllabus 3-53 was delayed, however, in order to take advantage of the findings of the Survey Commission. Its formal adoption, which is based upon approval indi-

(Continued on page 182)



VESTIBULE ENTRANCE DETAILS

CONSTRUCTION DETAILS

for LCN Floor Type Door Closer, Shown on Opposite Page

The LCN Series 2-4-6 Closer's Main Points:

1. Full rack-and-pinion, two-speed control of the door
2. Mechanism concealed; lever arm disappears under door
3. Door hung on regular butts, its weight carried independently of closer
4. Closer easily adjusted or serviced without taking door down
5. Installed with or without threshold; may be flush with threshold or with floor
6. Used with wood or metal doors and frames

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or See Sweet's 1955, Sec. 17e/L

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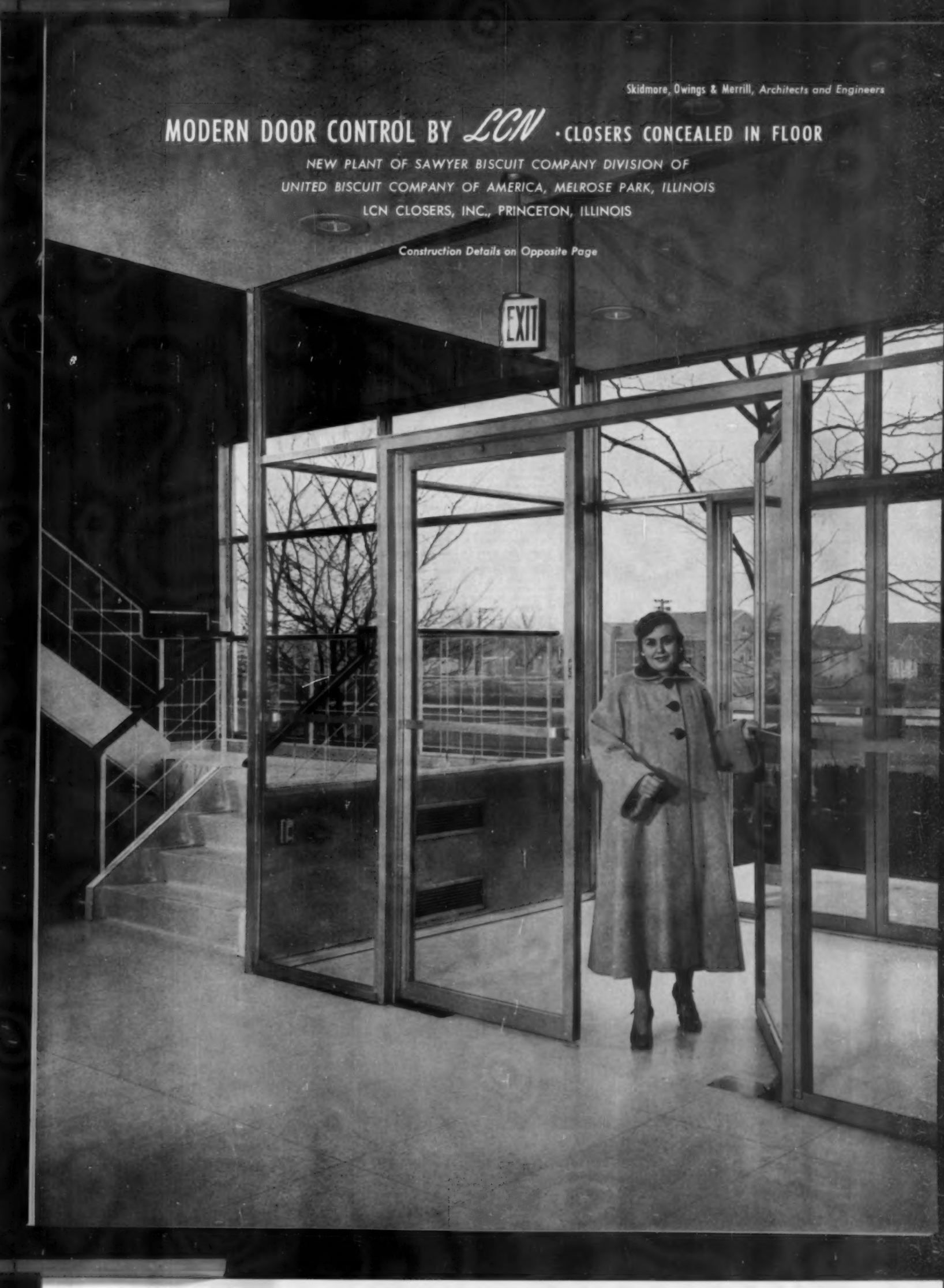
NEW PLANT OF SAWYER BISCUIT COMPANY DIVISION OF
UNITED BISCUIT COMPANY OF AMERICA, MELROSE PARK, ILLINOIS
LCN CLOSERS, INC., PRINCETON, ILLINOIS

Construction Details on Opposite Page



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   Architect: Calif. State Dept. of Public Wks., Div. of Architecture
   Contractor: George A. Fuller Co.
3. General Telephone Co., Santa Monica, Calif.
   Architect: Albert C. Martin & Assoc.
   Contractor: George A. Fuller Co.
4. City-County Bldg., Detroit, Mich.
   Architect: Harley, Ellington & Day
   Contractor: Bryant & Detwiler
5. Ford Motor Administration Bldg.
   San Jose, Calif.
   Architect: Albert Kahn Associated Architects & Engineers, Inc.
   Contractor: J. H. Pomeroy
6. State Office Bldg., Pittsburgh, Pa.
   Architect: Altenhof & Bown
   Contractor: Navarro Corp.
7. Office Building for the Norfolk Division of The Texas Co., Norfolk, Va.
   Architect: E. Brodford Tazewell
   Contractor: Doyle & Russell
8. Standard-Thompson Co., Vandalia, O.
   Architect: Lorenz & Williams
   Contractor: Maxon Construction Co.
9. Pennsylvania Thresherman & Farmers Insurance Co., Harrisburg, Pa.
   Architect: Edmund G. Good
   Contractor: Ritter Brothers
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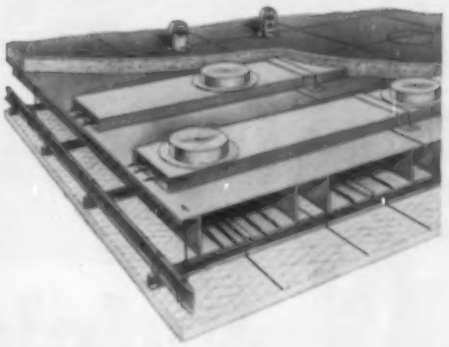

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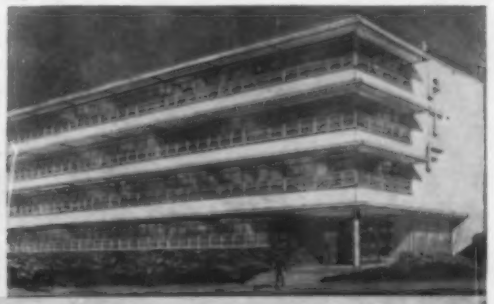

10

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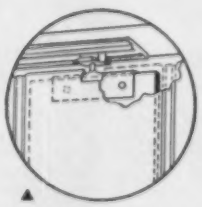
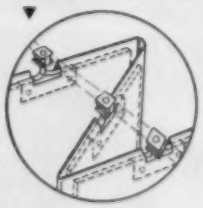


Extruded heavy-gauge aluminum track, fixed to the top of the opening. Self-lubricating Nylon swivel slide, fixed to metal plate riveted to leaf.

4" leaves, in individual pockets, assure perfect accordion-folding.



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out of school

(Continued from page 178)

vidually by the state boards, is not yet fully complete, but the acceptance has been so general that the National Council announced its replacement of the earlier document at the Boston Convention of 1954 and is urging its use by all states.

In brief, the document has been streamlined in form; the subject matter of the examinations has been regrouped; the statements of examination content have been extensively revised and re-evaluated; and the system of grading has been modified.

To understand fully the nature of the streamlining one will need to study the publication. It is hoped by the Council that its form will make the content more easily read and understood, and the intent more accurately conveyed.

The regrouping of examination subject matter provides now the following examination units:

Examination A—Academic and Practical Training
Value: 100 Points.

Examination B—Personal Audience
Value: 100 Points.

Examination C—History and Theory of Architecture
Value: 100 Points. Time: 3 hours.

Examination D—Site Planning
Value: 100 Points. Time: 5 hours.

Examination E—Architectural Design
Value: 200 Points. Time: 12 hours.

Examination F—Building Construction
Value: 100 Points. Time: 3 hours.

Examination G—Structural Design
Value: 100 Points. Time: 5 hours.

Examination H—Professional Administration
Value: 100 Points. Time: 3 hours.

Examination I—Building Equipment
Value: 100 Points. Time: 5 hours.

The examinations are not arranged into division groupings as they were previously. Each examination must be successfully passed with a grade of 75 points.

The content of the various divisions is direct and pointed.

The task now confronting the Registration Boards is to determine the effect

(Continued on page 186)

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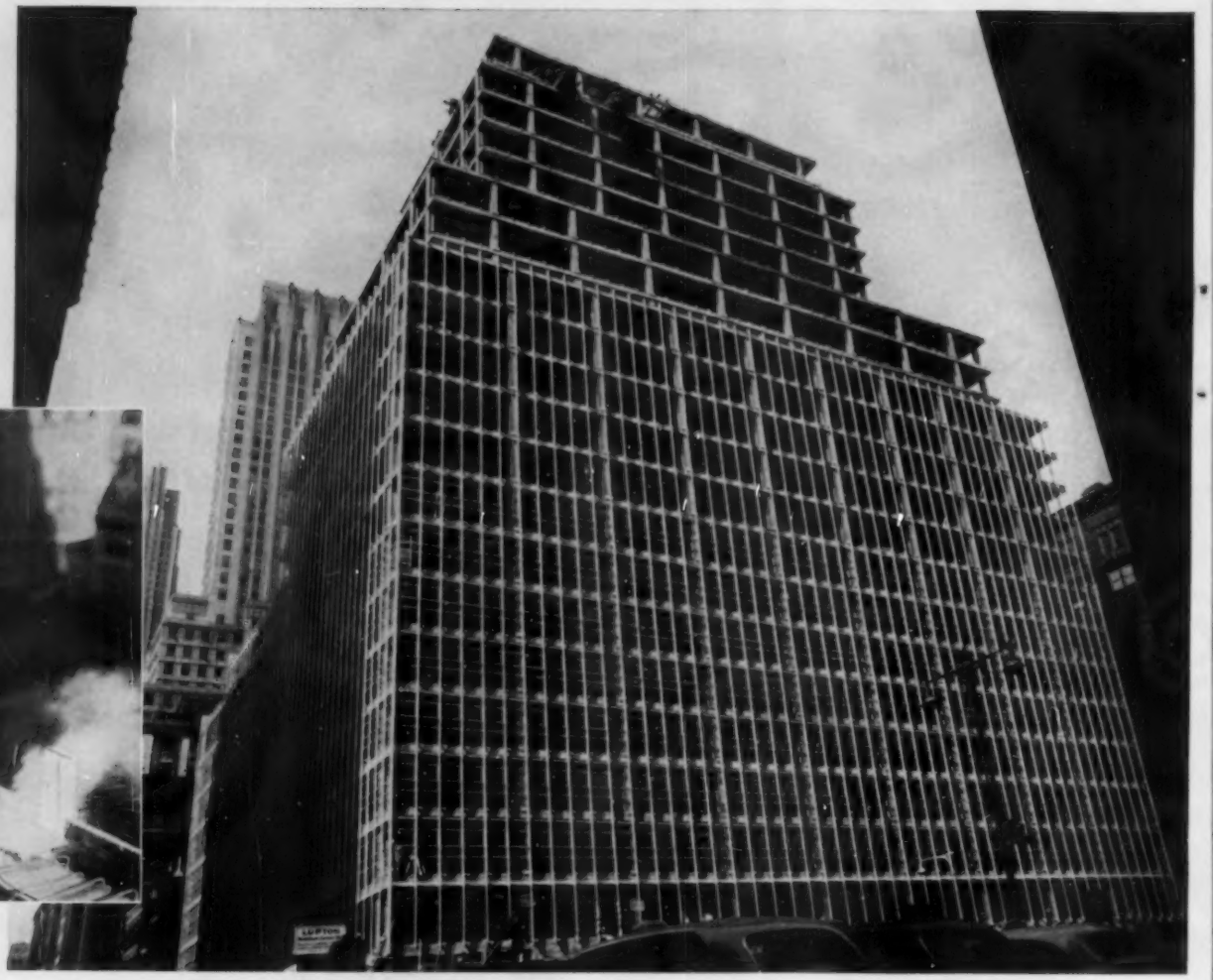
300 PARK AVENUE, NEW YORK. Arch: Emery Roth & Sons. Contr: Uris Brothers. Lupton Curtain-Wall, Type H. Width module, 4'-5". Structural opaque colored glass from floor to sill with clear glass above. Ventilators open out. New York building code requires a masonry back-up wall to sill height.

Welding anchor clips to the building frame, at locations established by a Lupton Engineer.



New Lupton *Simplified* Curtain-Wall System

Lupton-Engineered . . .
Lupton-Made . . . Lupton-Installed

NEW JERSEY STATE TEACHERS' COLLEGE, MONTCLAIR, N. J. (2 bldgs.) Arch: Emil Schmidlin. Contr: Martin Infante Co., Inc., Lodi, N. J. Lupton Curtain-Wall System, Type H. Width modules 3'-9" & 4'-1". Fixed glass and projected-in ventilators. Opaque areas are ⅛" thick embossed, fluted aluminum, alumilited. Special features: Heavy aluminum subframes and door frames.

Exterior view of building frame showing anchor clips in position. Clips provide for horizontal and vertical alignment of the curtain-wall units.

FAIRCHILD ENGINE & AIRCRAFT COMPANY, DEER PARK, LONG ISLAND, N. Y. (3 bldgs.) The Austin Company, Designers and Builders. Lupton Curtain-Wall System, Type H in office building. Width module 5'-0". Fixed glass, no ventilators. Opaque areas are ⅛" embossed fluted aluminum sheet with 1" thick insulation and galvanized steel sheet on inside. Lupton steel industrial windows in factory.

Here's the curtain-wall *you* design — Lupton *Manufactures* — Lupton *Installs*

This new exterior wall system offers new flexibility of design, aesthetic appeal and decided economies.

The Lupton Curtain-Wall System uses prefabricated units and aluminum mullions, designed for varying conditions and wind loads. Completely adaptable to single-story and multi-story buildings.

The Lupton Curtain-Wall System has been engineered to overcome inherent problems in curtain-wall construction — condensation — expansion and contraction — corrosion — warping and buckling.

Through standardized factory operations the Lupton System of construction offers custom-designed units at reduced costs. The design elements and construction features incorporate Lupton's more than 40 years experience in the production of metal windows. Now, you can specify type of fenestration, choice of wall unit materials, texture and color — and get what you specify. Your problems are simplified because Lupton Curtain-Walls are manufactured, shipped and installed by one responsible organization.

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Lupton installation includes everything—anchor clips adjustable to assure accurate alignment—all aluminum framework — custom-built units with or without ventilating sections — thorough, complete inspection and checking every step of the way.

INSTALLATION ECONOMIES

All-season installation from within the building — maximum prefabrication, less to do on the site — simplified on-the-job storage at needed floor levels . . . no ground storage. All aluminum units handle easily, go into place quickly.

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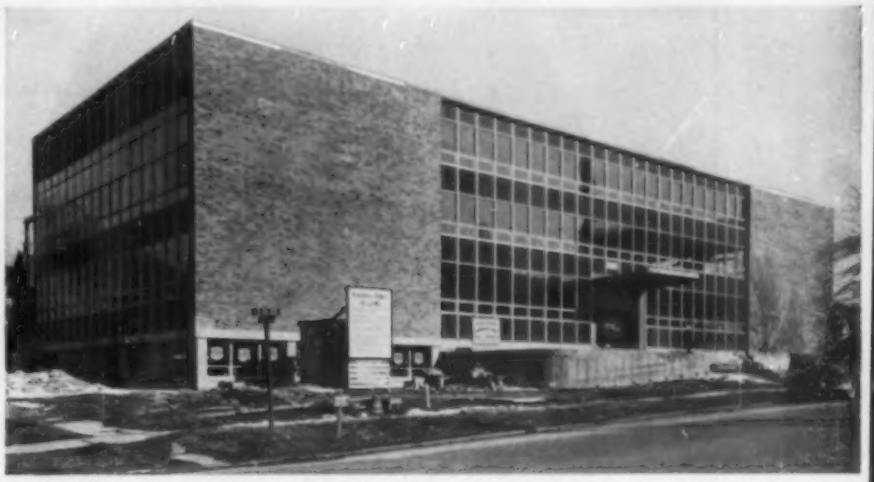
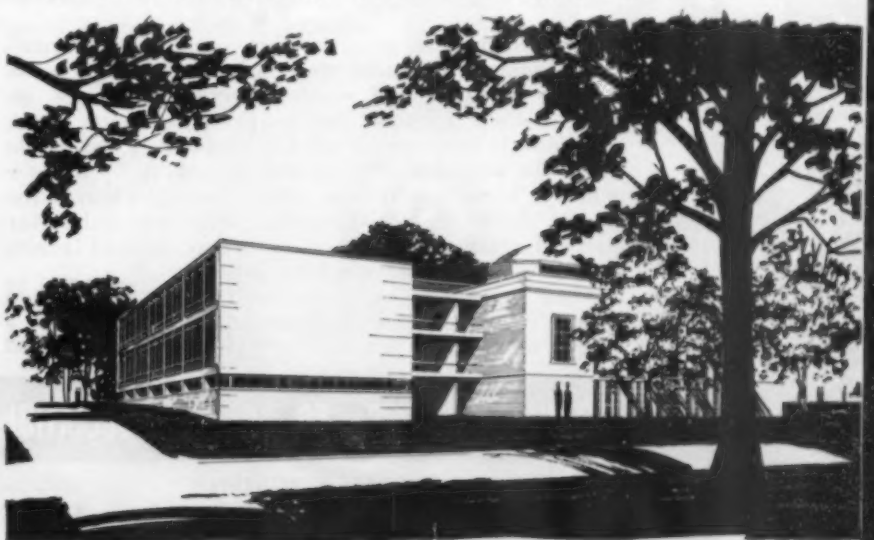
(Herb W. George) 9209 Cherry St., Kansas City 5, Mo.
CINCINNATI — De Sales Bldg., 1620 Madison Rd., Cincinnati 6, O.



NIAGARA COUNTY BUILDING, NIAGARA FALLS, N. Y. Arch: Charles F. Obenhack. Contr: Walter S. Johnson Building Co. Lupton Curtain-Wall System, Type G. Width module, 4'-0". Double glazing, 1" thick fixed lights, ½" thick in ventilators. Ventilators open in. Opaque areas are double panel construction. Outside face is green-black porcelain enamel laminated with honeycomb core, galvanized back. Inside face is galvanized steel sheet covering 1" thick insulation. Back-up wall to sill height.



SCHOOL OF DESIGN, NORTH CAROLINA STATE COLLEGE, RALEIGH, N. C. Arch: F. Carter Williams. Contr: Dickerson, Inc. Lupton Curtain-Wall System, Type H. Width module, 5'-8". Fixed glass and ventilators are inside bead glazed. Ventilators open out. Spandrels and column faces are covered by aluminum sheet .102" thick, alumilited.

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out of school

(Continued from page 182)

of the restated principles upon current examination practice and concurrently with such review to examine critically contemporary examination procedures in the attempt to produce fairer and more accurate tests of ability. In doing this a great many more detailed questions and determinations relative to the architects' qualifications must be faced and successfully established. Nationally this project has been placed in the hands of a Committee on Examinations headed by J. Woolson Brooks of Des Moines, Iowa. Some of the material which it will be obliged to consider might be anticipated to advantage here.

Examinations A and B include the collection of basic information concerning the candidate and provide for his personal appearance before the Board.

For several years the examination on History of Architecture (Examination C), has been subject to criticism. This has been true within the Council as well as in the profession generally. The committee responsible for the formulation of the revised syllabus was very conscious of this criticism but in the end felt that there was justification for the inclusion of such a section. This was particularly true with the emphasis being shifted from rote historical fact to that of historical analysis. The subject matter is outlined in the syllabus thus:

"History and Theory of Architecture.

"The development of architecture; the effect of geography, climate, and material resources; the factors of site and orientation; the influence of science and technology. The varying response to the needs and desires of the changing social pattern; the evolution of design, methods of construction, structural systems, and building equipment; the influence of tradition and law. Typical historical examples."

You will note the pointing of the above material suggests an approach quite different from the formal history examination in the History of Architecture. There remains the question of whether the above is really essential in establishing the competence of a candidate to practice architecture. The majority of the Council membership at present feel that it is.

(Continued on page 190)

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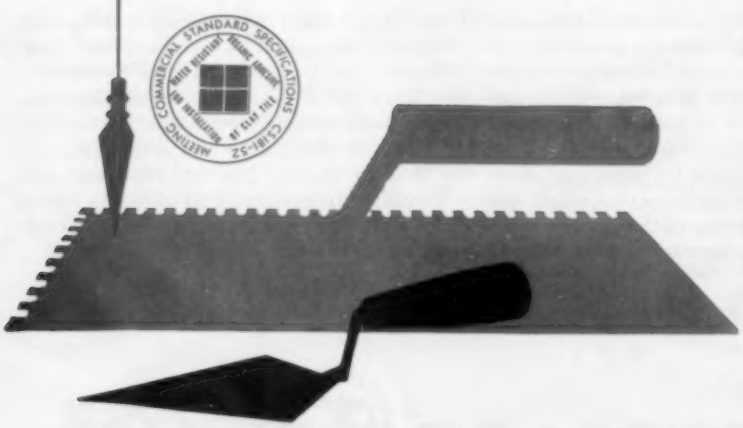

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Milcor Celluflor, latest cellular floor development, is truly the "Floor of the Future". It meets the changing, growing need for electrical flexibility to provide for electronic office equipment and business machines. Its closely spaced raceways permit the installation of communications or power outlets at virtually any point on the floor. Furthermore, these outlets can be relocated — or new ones added — without expensive alterations.

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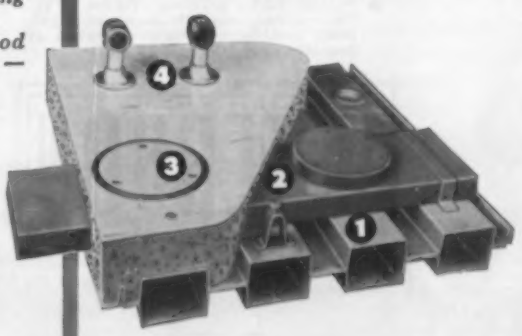

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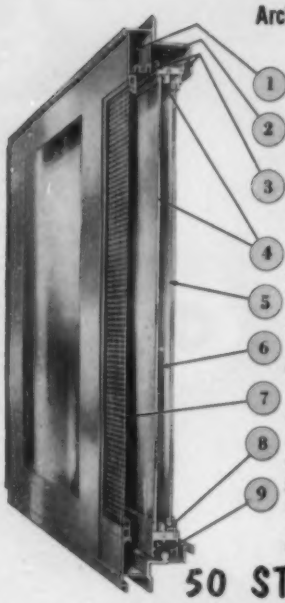
Can be Glazed with Double Strength, Crystal, Plate, Architectural Obscure Glass, as well as Sealed Glass Units.



1. Hollow-type aluminum extrusions for maximum strength . . . 63S-T5 alloy, minimum thickness .062".
2. Space for sliding sash to be lifted upward and into room for easy washing.
3. Hi-pile water and wear-resistant weatherstripping provides draft-free comfort—allows window to operate smoothly, quietly—eliminates rattling and whistling during windstorms.
4. Prime glass set with aluminum stops—no putty to fall out.*
5. Storm window has an aluminum frame removable into room for cleaning.*
6. Full half-inch air space between panes of glass for highly efficient insulation—(U factor .58).
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- **ROLLS OPEN HORIZONTALLY**—Effortless operation on grease-packed, dust-proof ball bearing rollers. No sash balances, springs, cranks or projecting hinges.
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Peterson Windows are a favorite of architects because they are designed of heavy, sturdy aluminum extrusions and are available in sizes up to 10' wide by 6' high. They begin where the economy project window leaves off.

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out of school

(Continued from page 186)

The subject matter of Examination D—Site Planning reads as follows:

"A short design problem involving a group of public or private buildings of any type, intended to demonstrate the candidate's ability to safeguard the interest of both client and public with respect to land value, obsolescence, traffic; to develop a functional arrangement of buildings and site which will also result in a visually satisfying composition of forms in space."

The Council's basis for commitment on this subject is that the architect with greater frequency is being called upon for total site design. Reports indicate that the frequency is sufficient to justify testing a candidate's competence in the subject area.

The division between Site Planning and Architectural Design is admittedly arbitrary. This is primarily a concession to time. It was reasoned that fair and adequate consideration cannot be given by a candidate to these two areas within even a 12-hour period. The division is occasionally softened in practice by boards making these two examinations apply to different aspects of the same problem.

Do a sufficiently large number of offices have commissions that include site planning to justify its inclusion in an examination?

Should site layout questions include details of grading more refined than may be indicated by contours? Should an examination include questions as detailed as road profiles, landscape details, plant materials?

How far into landscape planning may the architect justifiably be examined?

Provision for the "Design Problem," a well established part of the licensing examination in practically all states, is outlined in the syllabus in the following terms:

"A specific practical problem involving application of the principles of space design to solution of the program for a building such as might be found in architectural practice. The solution shall be submitted in drawings of specified number, kind, and scale to present an efficient arrangement, logical structural organization, compliance with basic codes for health and safety; also appropriate economy and satisfying aesthetic quality."

The general acceptance of this exami-

(Continued on page 193)

All business is show business...
and needs the unlimited design possibilities of

GOLD SEAL® INLAID LINOLEUM

By using Gold Seal's 36 patterns and wide range of rich inlaid colors, you can plan special floor treatments to direct traffic flow and separate areas in stores and offices.

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AVAILABILITY: One word sums it up.

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out of school

(Continued from page 190)

nation as a vital element in proof of competence does not relieve one of the necessity of raising certain questions which result from its inclusion. It is patently an adaptation of the "sketch problem" technique of the schools. It does, however, have a parallel in practice in the occasional client who for real and necessary purposes must set a "deadline."

If we assume the technique of the "sketch problem" to be an acceptable means of demonstrating competence, the matter of design judgment and the resulting grading, which determines the candidate's success or failure, must be faced.

Notable divergence of opinion concerning design grading occasionally is heard. Some members of Registration Boards who had their schooling prior to the 1920s were trained to recognize as basic the design philosophy attaching to the Beaux Arts tradition. They find contemporary design instruction and performance with its apparent lack of authoritative principles quite unsatisfactory.

What is a sound basis for the judgment of the Design Problem? Are board members correct in looking for "balance," "rhythm," "pleasant mass relationships," "proportion," "scale," etc., and permitting their sense of these values in a project to be influential in establishing a grade?

Is the following schedule, used recently by one state, sufficiently broad and inquisitive?

Factors Considered in Judging Design Problems

Site	10%
Planning of Building	50%
Constructability	20%
Esthetic Value	10%
Presentation	10%

What are the values by which a candidate's competence in design may be measured—and in particular that competence which will justify granting the privilege of professional practice?

Is there justification for insisting that a candidate be able to design competently in the manner of the accepted historic

(Continued on page 198)

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Insulite Roof Deck cuts costs $475 on this

They cut exposed beam ceiling costs 19¢ per sq. ft. Edward Pitt, A.I.A., Arlington, Va. (left) and builder Arthur Pomponio were quick to recognize the growing appeal of exposed beam ceiling construction. How Insulite's new 3-in-1 product—roof deck, roof insulation and finished ceiling—helped them capitalize on this trend by offering exposed beam ceiling at far less cost, is shown in pictures at right.

Build better and save with

Send for complete information now! Actual on-the-job pictures and construction details show how to use new Insulite Roof Deck to build better for less. Write Insulite, Minneapolis 2, Minnesota.

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Made of hardy Northern wood

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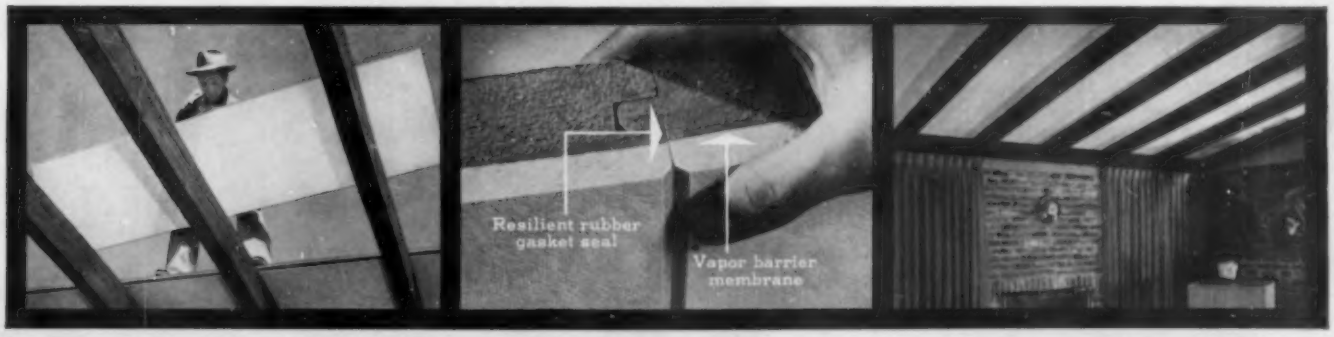
exposed beam ceiling 2500 sq. ft. job

Trendsetter Home, Lake Barcroft Estates, Fairfax County, Va. Architect: E. M. Pitt, A.I.A., Arlington, Va. Builder: M. Pomponio & Sons, Arlington.



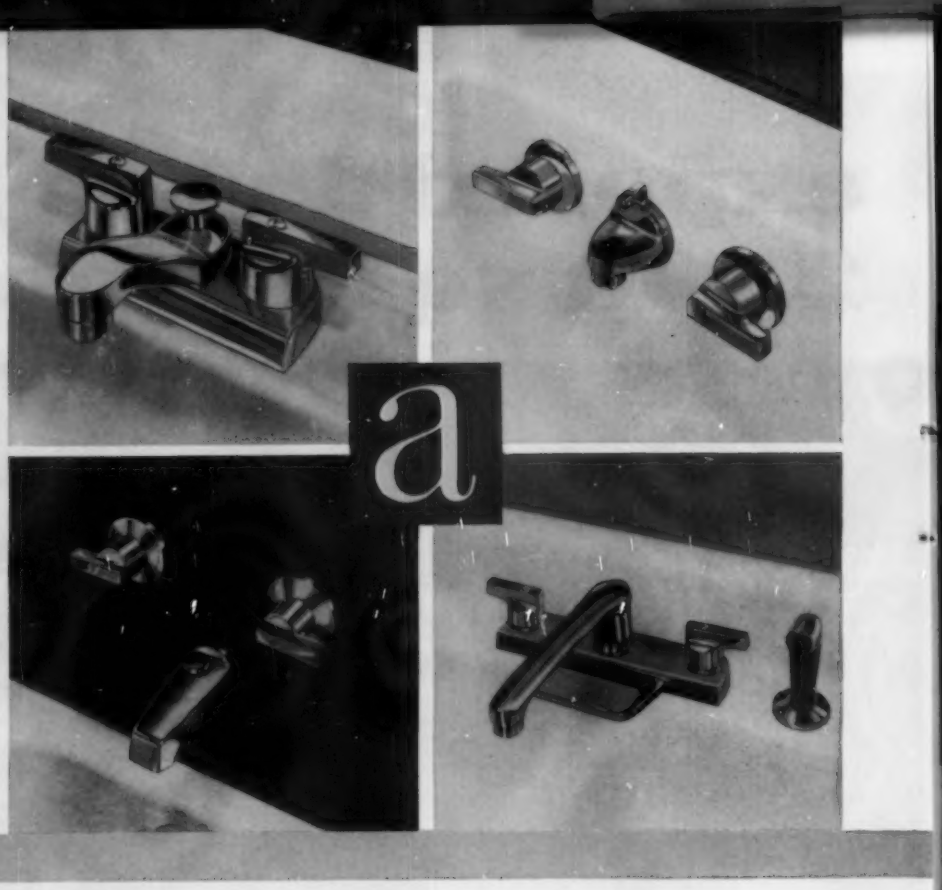
1. It's roof deck . . . Two by eight foot unit cuts application time as much as 45%. Only one material to handle. New Insulite Roof Deck eliminates need for separate roof boards, insulation, lath and plaster and ceiling finishing. Roof Deck can save 12 man-hours per 1,000 sq. ft. of surface compared with 2"x6" D&M roof sheathing.

2. It's insulation with vapor barrier . . . No need for other insulation. Two-inch Roof Deck is comparable to 2" wood deck plus 1" fiberboard insulation and meets heat loss requirements for roof and ceiling construction. Absorbs sound better than wood or plaster. Exclusive vapor barrier protects against condensation within the unit.

3. And finished ceiling . . . The underside of Insulite Roof Deck is finished with a white flame-resistant surface at the factory. Lay Roof Deck over pre-finished beams and ceiling is done. No need to plaster, paint, stain or wax. Reduces labor and material costs. Available in 2'x8' units, 1½", 2" or 3" thick with or without exclusive vapor barrier.

a **New Quality Line.** Here are smart, new fittings for the bath, lavatory and kitchen . . . in center-set and spread styles. They're designed to complement the modern lines of American-Standard plumbing fixtures, and will give long, dependable service. All Quality Line fittings are finished in gleaming Chromard for permanent beauty and easy cleaning.

b **New Monogram Fittings.** These luxurious fittings have a rich satin chrome finish, and can be personalized with the owner's initials. Distinctive Monogram fittings are available with clear or colored non-slip handles to blend with the bathroom color scheme.



Picture studies in function and

c **New Bathroom Fixture.** The Dentaledge is a useful and sanitary addition to the modern bath . . . it helps relieve bathroom "rush-hour traffic"! This 14" x 14" dental lavatory features a flushing rim with a back-flow preventer. Styled to harmonize with other American-Standard fixtures, it is made of genuine vitreous china.

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out of school

(Continued from page 193)

forms, e.g., Greek, Gothic, Renaissance, American Colonial, etc.?

Should design problems be graded solely on the grounds of plan logic, structural practicability, and conformity to the recognized principles of safety?

Are the schools in their current unwillingness to codify design principles and the consequent dependence upon personal opinion and taste providing a training that has in it the elements of esthetic soundness?

Regardless of the voiced responses to the above questions, each board must formulate its own definitive answers each time it faces the perennial crop of Examination E presentations.

Examination F — Building Construction embodying the content of the old examination E—Materials and of Examination H—Supervision is described in the syllabus as follows:

"The use of materials and methods of construction. The selection of appropriate materials and knowledge of how they are combined for use under given conditions, considering their practicality and durability, also the factors of safety, economy, and architectural expression. Supervision of construction detection and correction of defects; sequence of construction operations."

It is evident that the above anticipates the inclusion of knowledge of construction processes and methods beyond the content of the two earlier examinations. This may permit a board to supplement the examination on Structural Design, and it is reported that it is so done in some states.

We have state and federal laws to protect the citizen against fraudulent advertising, inaccurate weights and measures, contamination of food, and even to protect businessmen against each other in the fair trade protective legislation. Can we not logically expect public support in an attempt to protect citizens against financial loss resulting from bad judgment in the selection and purchase of building materials and methods?

Should not this area, including much of the practical knowledge of the construction process and its proper supervision, be one for which the candidate re-

(Continued on page 202)

"What do you mean you can't get good prints?"

Don't expect the Blueprinter to produce sharp prints from poor tracings. Be sure! Switch to graphite-saturated

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Wood pencil or Imported 9030 Lead and LOCKTITE Holder with new gun-rifled vice-like clutch. (pat. appd. for).

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Glide-All Sliding Doors were selected for this prize Hotpoint Living Conditioned Home for 1955.

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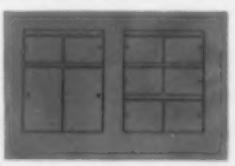

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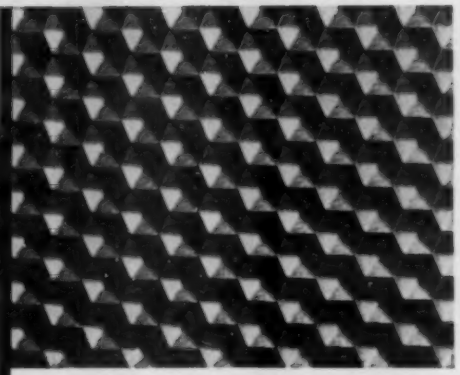
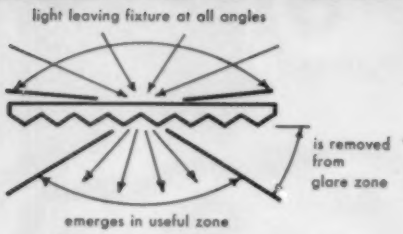
ARCHITECT'S AND ENGINEER'S FACT SHEET

Photo—Ezra Stoller. Pattern 70 installation at the Manufacturers Trust Company's new Fifth Avenue Office in New York. Architects—Skidmore Owings and Merrill.



Close-up view of Pattern No. 70, a prismatic crystal lens panel. You can get Pattern No. 70 in widths up to 34 inches, lengths up to 100 inches.



Working diagram. Light enters panel from fixture (top) at all angles. Prisms gather light, transmit it to useful zone.

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Lightweight . . . Low-Brightness Lens Panel

You use Corning Pattern No. 70 to deliver maximum light in the useful zone with low brightness in the glare zone.

A pattern of hexagonal prisms on one surface controls the light. These prisms bend light rays downward creating more useful illumination. Light in the near horizontal angles is reduced so that surface brightness of the panel is low at normal viewing angles.

Result is a distribution of emitted light in a pattern of even illumination on the working surface.

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Recommended for luminous elements, troffers and fixtures in schools, banks, offices — *wherever* you want low brightness.

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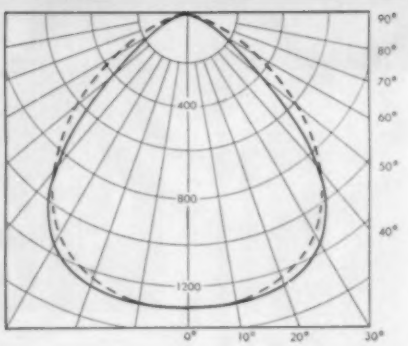
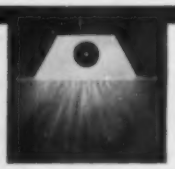


Candle power distribution
——Across axis ---Thru axis

Two 40-watt 3500° lamps (4960 lumens). White Enamel Reflector, 80% R. F., 11" x 48" segment. No. 70 Low-Brightness Lens Panel.



White Reflector and Pattern No. 70 Low-Brightness Lens Panel.

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Suntile Satinized Ceramics offer you a fresh, practical design medium for business interiors.

The smaller sizes* and pleasing colors of porcelain and natural clay tile permit you to produce an almost endless variety of patterns and textures.

Delivered mounted on large sheets of back-up material, Suntile Satinized Ceramics are quickly installed. They will stand up equally well in walls or floors—*indoors or out*.

Use them wherever you need a finish that is both handsome and easily maintained.

St. Paul's Federal Savings & Loan, Chicago, Ill.
Architect: Holabird, Root & Burgee
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SPECIAL DESIGN SERVICE

Our staff of trained ceramic artists, headed by Harry J. Macke, is always prepared to assist you with tile design or layout problems—at no obligation. Write us for full information on this service. Address Dept. PA-55.

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out of school

(Continued from page 198)

ceives his training primarily in the three years as an "Architect-in-Training"?

That the material outlined in this examination is logical subject matter for examination appears to be generally accepted, but the manner of its application differs somewhat with the individual boards.

Examination G — Structural Design reads as follows:

"The knowledge of various structural systems; when, how, and why each would be used; the determination of safe and efficient sizes of structural elements and arrangements of combinations of such elements as slabs, beams, girders, trusses, columns, walls, foundations, and footings, designed in various materials by either graphical or mathematical analysis."

Those familiar with the old NCARB syllabus will immediately observe the omission of the "Truss Design" as a separate examination. Statics is included as a part of the larger division.

Some members of the NCARB have expressed the opinion that the revised publication allocates insufficient time to Structural Design. Attention is called, however, to the possibility of examining some aspects of Structural Design under Building Construction.

Widely varied opinions are found nationally on the extent to which the architect should be capable of determining, computing, and detailing the structural design of the buildings for which he assumes responsibility.

Should an architect be capable of designing in detail all structural systems currently in use, including the more complicated forms such as the rigid-frame, long-span members requiring the use of moment distribution calculation, the more intricate requirements created by horizontal forces of wind and earthquakes, etc? Should he be examined in detail on his competence to so design?

Should an architect have a basic understanding of the forms listed above sufficient to do such design in an emergency and to criticize intelligently and check design produced by others or to set up with confidence the designs of buildings which must use the above listed structural forms? (Knowing member sizes,

(Continued on page 208)

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Anchor rafters and joists to prevent wind damage.

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Powers Control Saves Water
No time or water is wasted by bather having to get out from under shower due to fluctuating temperature. Water conservation alone helps pay back its cost.

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Why Famous Guests in *The Beverly Hilton* Hotel will enjoy the best, worry-free showers they ever had:

- Shower temperature *always* remains constant wherever bather wants it regardless of *pressure or temperature* changes in water supply lines.
- There is no danger of accidents caused by slipping and falling while trying to dodge an unexpected shot of hot or cold water.
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Will a water insulated roof be required for air conditioning or cooling condenser water?

Will the roof be sloped?

Will the drains require adjustment to meet changes in thickness of roofing materials?

Will the roof be used for traffic or open-deck auto parking?

Will the roof drains be required to take care of excessive rainfall or cloudburst?

On many jobs it becomes a question of just how much time you can spend to determine the right drain for the purpose?

To facilitate the selection of the proper roof drain for a specific purpose, Josam offers the check list below. This shows the great variety of features available only in JOSAM drains and illustrates those features on the next page. After you have determined the features you need, your selection from the JOSAM line of hundreds of different types of roof drains and accessories, will give you a specially designed drain to meet your type of installation.

Or . . . a much quicker method of selecting roof drains is to ask the JOSAM representative in your territory. From his years of experience and his personal knowledge of the Josam line, he can quickly recommend the correct features for your needs, because JOSAM makes a roof drain for every need!

This service is yours for the asking. It costs you nothing, so why take less than the best when *the best costs no more*? Call JOSAM for all your plumbing drainage needs . . . and you'll get your job done right . . . to *your* satisfaction!

☐ Combined Dome Strainer and Sediment Cup	See No. 1, 4, 10	☐ Valleys and Gutters	See No. 10, 12
☐ Large Mushroom Type Dome	See No. 2, 5, 7, 8	☐ Drain with Integral Expansion Joint	See No. 8
☐ Promenade Top	See No. 3, 6	☐ Parapet Wall and Scupper	See No. 11
☐ Sloped or Pitched Roof	See No. 4	☐ Balcony and Cornice	See No. 10, 12
☐ Cloudburst Drain	See No. 5	☐ Adjustable Water Dam	See No. 9
☐ Auto Parking Area	See No. 3, 6	☐ Materials and Finishes	See No. 13
☐ Adjustable Top Drain	See No. 7	☐ Outlets	See No. 14

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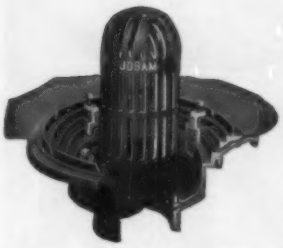
for any type roof . . .



1 Josam Series No. 410 roof drain with removable high dome and sediment cup.

2 Josam Series No. 4120 roof drain with removable mushroom type dome and side outlet.

3 Josam Series No. 4010 roof drain with square top and loose set grate for promenade deck.

4 Josam Series No. 4710 roof drain with pitched sump and flange for sloped roofs.

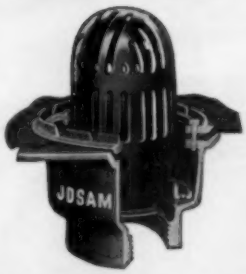
5 Josam Series No. 4140 torrential type roof drain with removable mushroom dome.

6 Josam Series No. 5460 roof deck drain with removable grate and sediment bucket for auto parking areas.

7 Josam Series No. 4550 roof drain with adjustable top and removable mushroom dome.

8 Josam Series No. 4410 combined roof drain and expansion joint, removable mushroom dome.

9 Josam Series No. 410-F roof drain with adjustable flooding water dam, for air conditioning purposes or cooling condenser water.



10 Josam Series No. 440 roof drain with removable dome and sediment cup, for narrow valleys and gutters.

11 Josam Series No. 4950-BN scupper and parapet wall drain, removable sloping brass grate and downspout.

12 Josam Series No. 4870-B sill drain, with removable brass dome and side outlet.

13 MATERIALS AND FINISHES — Josam roof drains regularly all furnished cast iron, lacquer finish unless otherwise described, optional materials galvanized iron, all brass, all Everdur, rough brass tops, chrome plated, polished or Everdur.

14 OUTLETS — Drains illustrated above furnished with outlets as indicated. Optional outlets, inside caulk bottom outlet, threaded hub or spigot side outlet.

For each of the many basic drain designs in the Josam line, there are scores of variations depending on the particular requirement. These are all clearly illustrated and described in the Josam Catalog "K" or Manual "SK" — the accepted authorities in the field. These are invaluable reference guides on all plumbing drainage problems. Send coupon if you do not have a copy of Josam Catalog "K" or Manual "SK".

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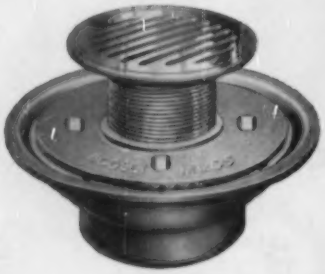

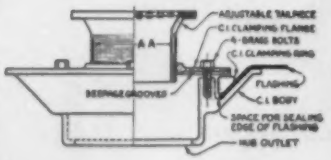

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Here's the easy way to specify the exact drainage specialty! Catalog contains complete specifications and engineering drawings for area drains, basement floor drains, boiler room drains, back water valves; cafeteria, shower and toilet room drains; double drainage drains; expansion joints, flashing fittings for stack vents; manhole back water valves; pump room drains; roof drains and stack base fittings.

NORMAN BOOSEY MFG. CO.

General Sales Office

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BOOSEY

out of school

(Continued from page 202)

necessary bracing provisions, and such other detail as may influence general building design?) Should he be so examined on a reasonable working knowledge of these forms?

Should an architect's competence be limited to simple members in steel, wood and concrete, including simple footings, columns, beams, and light loaded trusses up to 60′ or 75′ span, and the parallel knowledge of riveted and welded joints, etc.? Should the examination confine itself to problems involving these simple structural members?

Should the architect's competence in structural design be purely perfunctory, and the design eliminated from registration examination?

Many of the members of the National Council are of the opinion that in the schools and the examinations too little stress is laid upon structural design competence. Their reasoning generally follows this process:

Structure is increasingly determinative in the establishment of contemporary form. Such structure is the outgrowth to a great degree of the application of new materials and processes. Then, how can contemporary design in any sense be alienated from structure? And, how can the designer be really free to establish form unless he is thoroughly acquainted with the detailed structural design process? Does not the establishment of form without consideration for structural design integrity lead to irresponsibility on the one hand, or to the forcing of structure to a predetermined appearance, which is basically the criticism leveled at the design prevalent at the turn of the century and immediately thereafter.

It is recognized that many architectural offices do their structural design as a separate engineering department or in a consultant's office, but is the fact that practice is so conducted proper justification for relieving the architectural candidate of the necessity for proving his competence in structural design or the schools of their responsibility to teach structures?

The content of Examination H—Pro-

(Continued on page 212)

recognize this renderer's technique?

The pencil technique of a top flight renderer is as distinctively and individually his as his signature. Yet the work of so many of these fine artists has one thing in common — it is done with Mars-Lumograph imported drawing pencils and leads. Renderers find Mars the perfect pencil for every step of the job.
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Vincent Furno, A.I.A. who executed the above rendering.

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Whether you are working on large or small floor plans, A-O Tile's accurately blended colors, their wide choice of attractive designs, and their self-spacing feature give you your surest way to a successful installation. Specify American-Olean: its beauty is permanent because it's ceramic tile!

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- ☐ Booklet 300, Tile for Industry"
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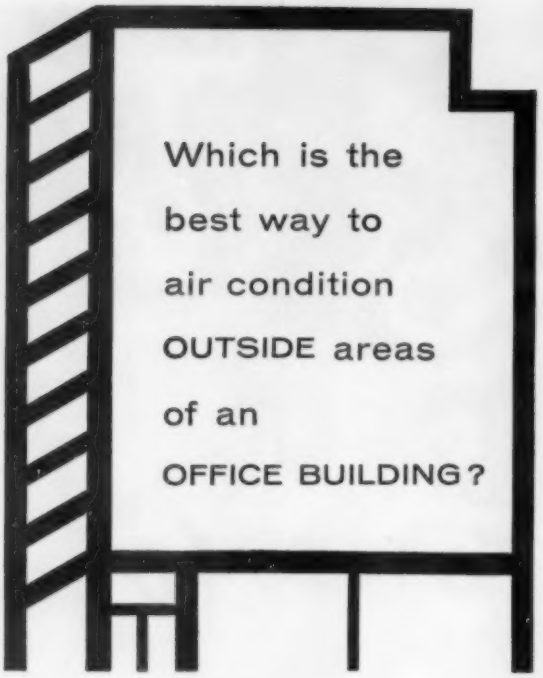

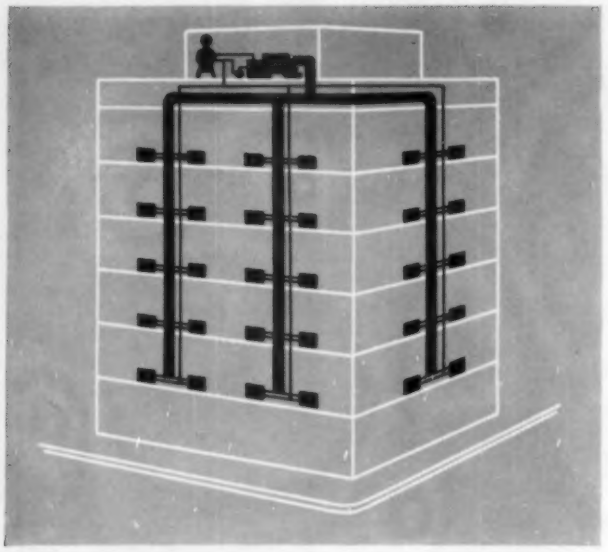

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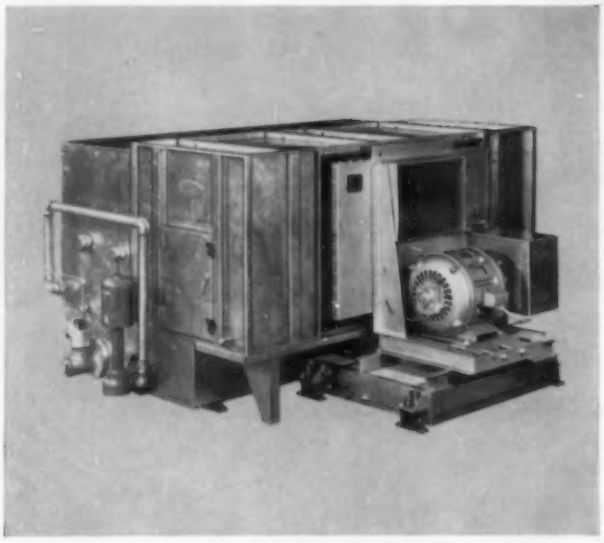

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in Cast Brass, Bronze, or Aluminum
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Construction features such as a seamless tubular knob shank; self-lubricating latch bolt; provision for full size master ring cylinder to mention a few . . . account for the selection of "Stilemaker" Locks and Latches as standard hardware on more and more new construction.

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in Cast Brass, Bronze, or Aluminum
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in Wrought Brass, Bronze, or Aluminum

BRUNSWICK DESIGN
in Cast Brass or Bronze

MONO DESIGN
in Cast Brass, Bronze, or Aluminum

out of school

(Continued from page 208)

fessional Administration reads as follows:

"Questions relating to the ethical, legal, and administrative responsibilities of the architect; relationships between architect, owner, and contractor; building laws, lien laws, specifications, contracts, bonds, insurance, certificates, and arbitration."

Is the candidate's knowledge of estimating, building costs and relative prices of materials a proper subject for examination?

Should the candidate be examined on his knowledge of professional fees?

Should the candidate's unfamiliarity with proper client relations and professional responsibility to a client be grounds for refusing a license?

Is the architect's knowledge of law as related to contractural relations, liens, insurance, bonding, and the procedures of arbitration essential and proper subject matter for examination? To what extent?

The content of Examination I—Building Equipment is as follows:

"Principles of design and detailed knowledge concerning heating, ventilating, air conditioning, plumbing, electric wiring, refrigeration, fire protection, and vertical transportation; taking into account scientific, technical, economic, and practical factors; also compliance with codes for public health and safety."

Upon how much detail of design and computation should an architectural candidate be examined?

Should he be examined in the computation of heat loss, cooling loads, radiation capacity, boiler size, etc.

Should he be examined in hydraulics sufficient to establish his knowledge of the flow of liquids in pipe, water pressure as related to building services, etc?

Should he understand the characteristics of electric power, the balancing of electric loads, the relation of wire size to electric load, etc?

In the revised Syllabus, the NCARB has recorded its tabulations of the "elements which constitute professional competence."

Into the examinations offered this coming year under Syllabus 3-53, the State Boards will write their interpretation of

the subject matter therein outlined.

Through the committee now at work upon examination form and procedure it anticipates the establishment at an early date of an anthology of experience-tested questions in the various divisions of the examinations, and the development of a process by which this anthology may be refreshed and kept abreast of contemporary practice.

Before the work of this committee is completed it is possible that they may also be asked to undertake a careful appraisal of the latest testing techniques to determine whether, by means of objective tests in particular areas of subject matter, it will be possible to secure results of greater accuracy and scope with equal effort and less possibility for personal bias in grading.

For the near future is the exploration of the possibility of establishing an examination, centrally prepared, of such character that it may be administered simultaneously throughout the nation and its results checked and graded in a central office.

notices

The Committee in charge announces the 24th annual consideration of candidates for the KATE NEAL KINLEY MEMORIAL FELLOWSHIP, UNIVERSITY OF ILLINOIS. Applications should reach the Committee not later than May 15, 1955. The Fellowship provides $1300 for a year of advanced study of the fine arts in this country or abroad.

The ILLINOIS INSTITUTE OF TECHNOLOGY announces the creation of a $6000 scholarship fund for prospective architects. The fund provides for two $1000 annual scholarships to be awarded for three years, beginning this fall. One recipient will be selected by the AMERICAN INSTITUTE OF ARCHITECTS and the other by the scholarship committee of ILLINOIS TECH.

(Continued on page 217)

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Holy Cross
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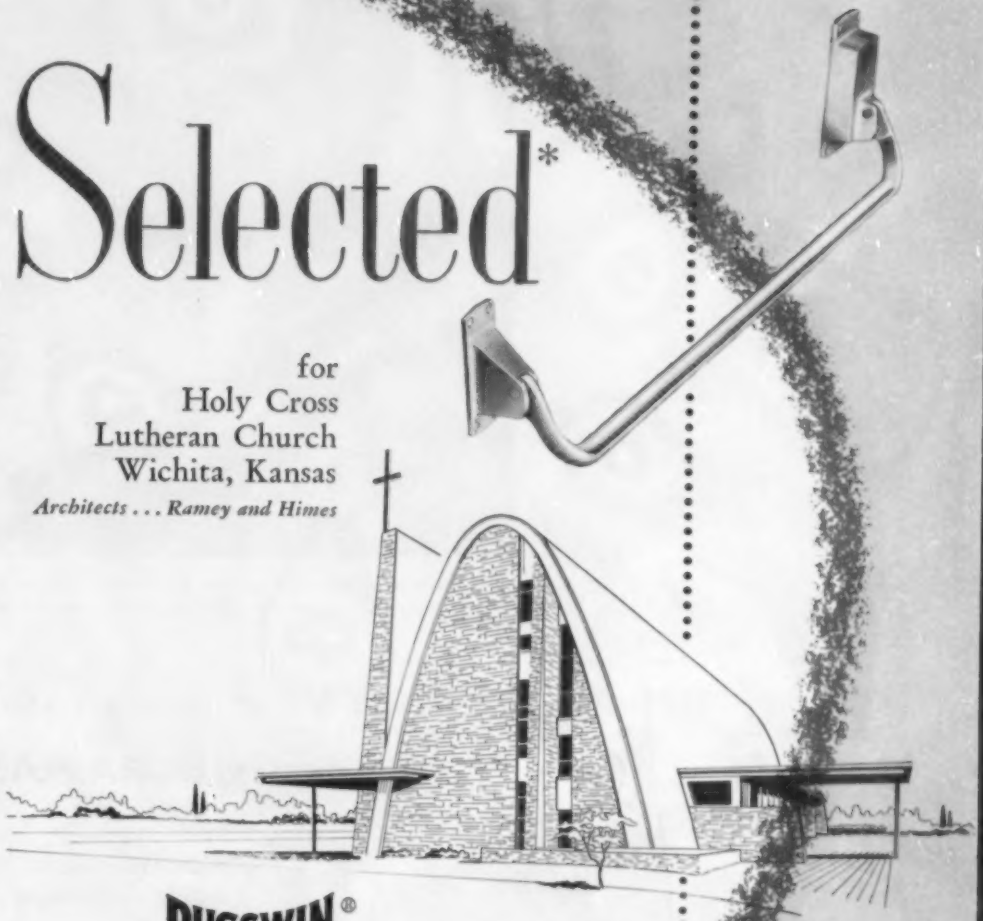

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Russwin Exit Devices are made in rim and mortise types, with swing type top and bottom latch bolts for single and double doors. Russell & Erwin Division, The American Hardware Corporation, New Britain, Conn.

*Surface Door Closer

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South Bend, Indiana
Architect: Harold Wagoner
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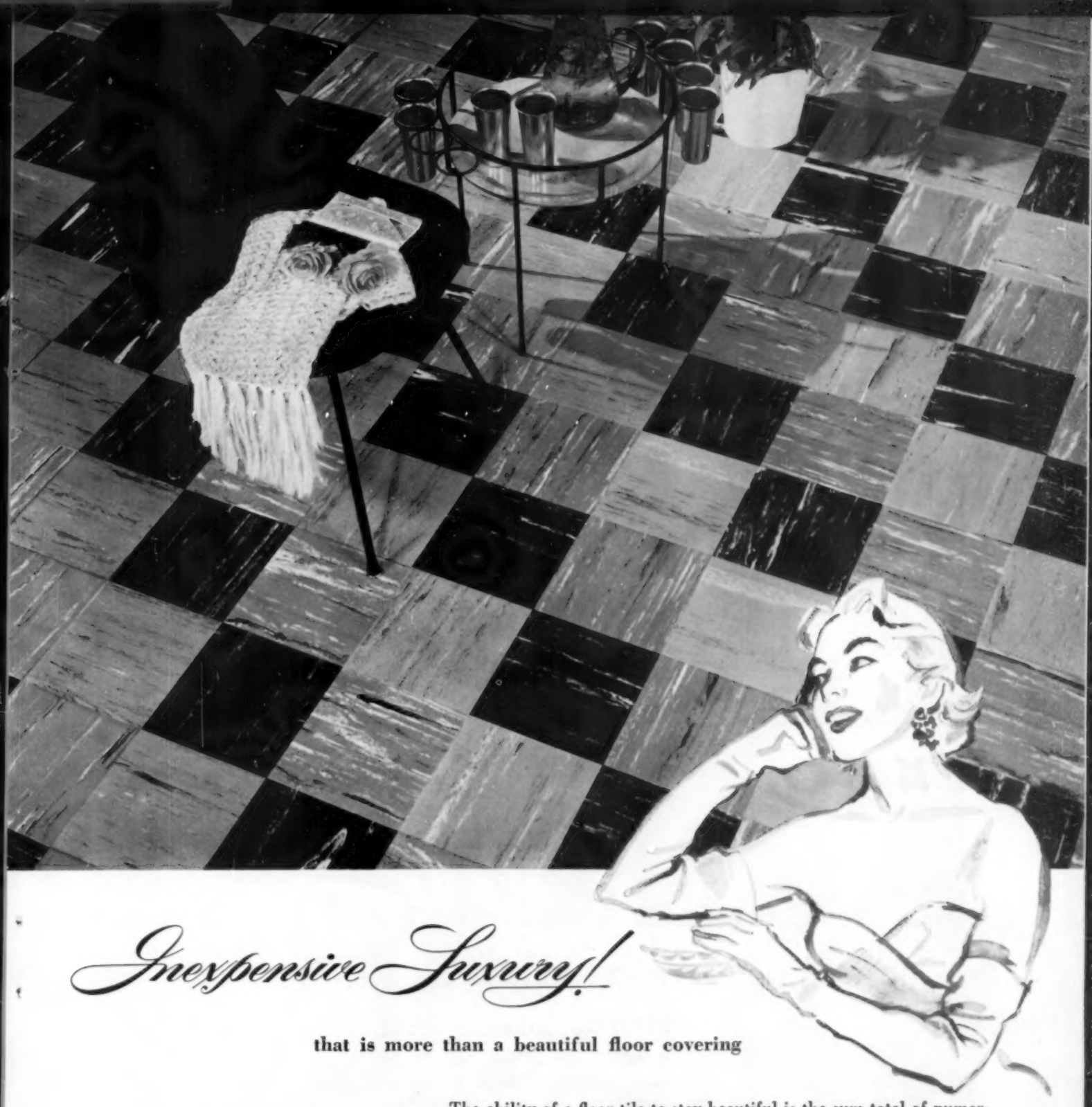

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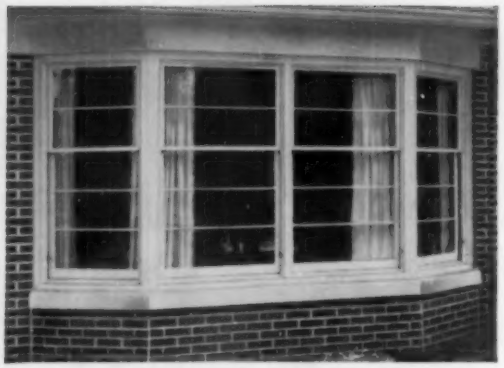

Superior weather-tightness is an outstanding feature of Curtis Silentite double-hung windows. They've withstood sand storms, blizzards, floods, with their weather-tightness and ease of operation unimpaired.

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Thanks to the patented coiled-spring suspension method, combined with factory fitting of sash to frame and the use of sliding bars and double Z spring weather-strips, a Curtis Silentite double-hung window literally "floats" in the opening. Lifetime ease of operation is built right in.

Yet you can be sure that Silentite is weather-tight, too. For special "floating" weather-strips keep out dust and water, cut air infiltration to a minimum—offer the homeowner fuel and air conditioning savings, year-round comfort.

Available as complete units with frame, window, sash lock, interior trim, screen and storm sash, Curtis Silentite double-hung windows come in 7 different styles and in all standard sizes, allowing unlimited variations for beauty and utility.

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notices

(Continued from page 213)

AMERICAN SOCIETY OF PLANNING OFFICIALS has awarded a citation honoring KATHERINE MCNAMARA for 30 years service to city planning education as Librarian in the Department of City Planning and Landscape Architecture Harvard Graduate School of Design.

new program

MIAMI UNIVERSITY Graduate School announces a one-year program leading to the degree of Master in City Design. Enrollment will be limited to fifteen students, who must be graduates in architecture. Applications close June 15.

meetings

As part of MICHIGAN STATE COLLEGE Centennial celebrations the College of Engineering is sponsoring a symposium on "Automation—Engineering for Tomorrow," to be held May 12-14.

AMERICAN SOCIETY FOR ENGINEERING EDUCATION will hold its 63rd Annual Meeting at Pennsylvania State University, June 20-24.

UNIVERSITY OF ILLINOIS announces that the 1955 NATIONAL CONFERENCE ON INSTRUCTION IN LANDSCAPE ARCHITECTURE will be held June 22-25 at Allerton Park, country conference center of the University.

P/A congratulates

R. E. MURPHY, Chicago, president of NATIONAL ASSOCIATION OF PLUMBING CONTRACTORS, will be general chairman of the NATIONAL PLUMBING AND HEATING EXPOSITION at Navy Pier, Chicago, June 6 to 9.

SOLON E. FRIEDEBERG of New York, associate of SEARS & KOPF, mechanical-electrical consulting engineers, has been elected a national director of the NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS.

The URBAN LAND INSTITUTE, of Washington D.C., announces that WARREN L. MORRIS, Cleveland real estate executive, has been elected President of the Institute.

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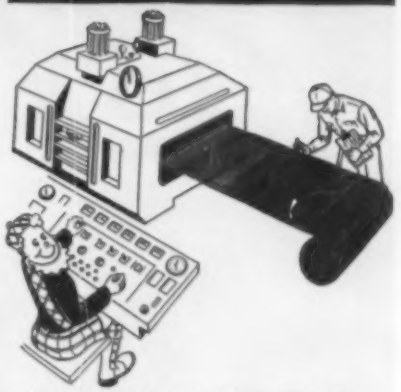

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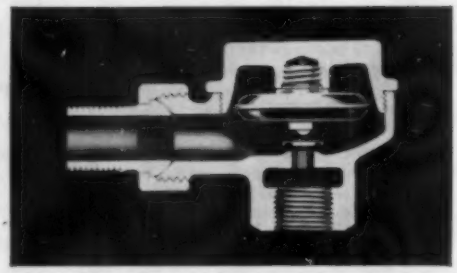

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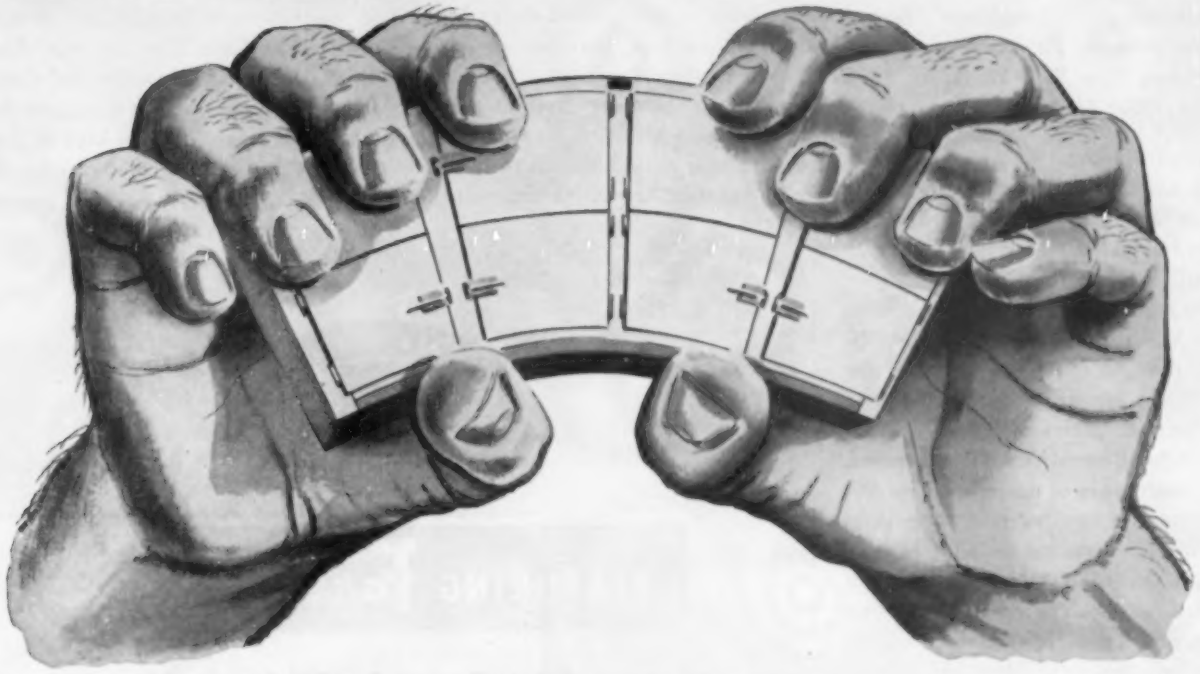

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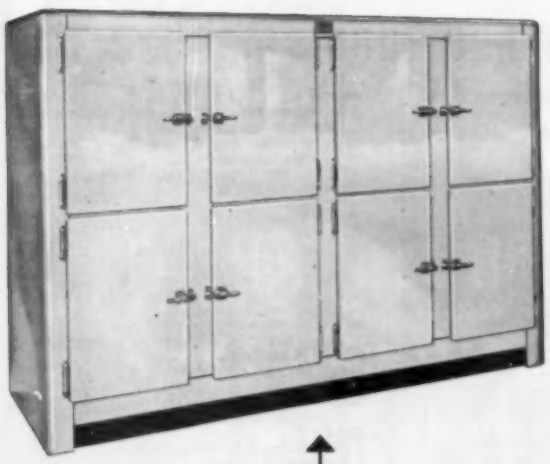

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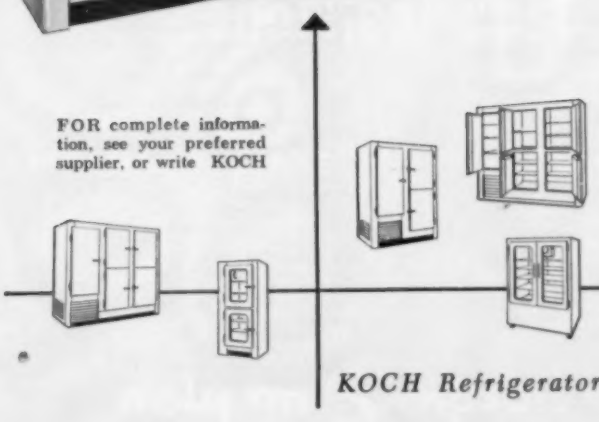

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the mystery re-examined

Architecturally Speaking. *Eugene Raskin. Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y., 1954. 129 pp., illus., $3.50*

Professor Raskin's book, an important and rewarding one, is defined by the author as "an inquiry into the psycho-physiological considerations involved in architecture."

This inquiry was begun, as I remember it, by Alberti but it is continued by Raskin in the light of those new understandings of ourselves and of the world around us which are generated by the new science called General Semantics. Because, as a consequence of this science, we find ourselves in a new universe where long-standing problems are suddenly capable of solution, where "much that had been mysterious (is) a mystery no longer," we ought, says Raskin, to re-examine our art in the hope that its problems and its mysteries may be as happily resolved.

If the reader will pass through this somewhat formidable gate, raised by the author in the first chapters of his book, he will be pleasantly surprised to find that architecture remains precisely what it has always been: a problem and a mystery. He will find also in Raskin a most engaging guide and companion on a voyage of exploration through that enchanted realm: a voyage which, although it takes one along familiar paths, is so enriched with refreshing valuations and evocative comparisons, and with insight and wit, as to make architecture even for a tired educator an exciting experience and a renewal of faith. Students entering that realm for the first time could scarcely have a better mentor.

Architecture, writes Raskin, is an art of expression. Architecture originates in the idea and feeling of an architect; becomes, through a process inaccessible to the intelligence, inherent in a pattern of space and structure; and is revealed, by a process equally enigmatical, to those observers who are, by the grace of God, receptive to architectural idea and feeling. Thus the meaning of architecture lies—at its beginning and end and "all the way through"—in human behavior.

In the light of these definitions, Professor Raskin re-examines the well-tried expedients of architectural design lifting each in turn from the stale air of the Academy, where they exist as the means of objective harmony and integration, into the more rarified air of the neuro-semantic and neuro-linguistic issues. Unity, proportion, scale, rhythm—all the stock concepts in the designer's arsenal of concepts—are brought out of their mothballs, set free from any taint of tradition, and given a new life and dimension. But Raskin does not suggest that these abstractions are the keys to great architecture. They remain crutches for

(Continued on page 224)

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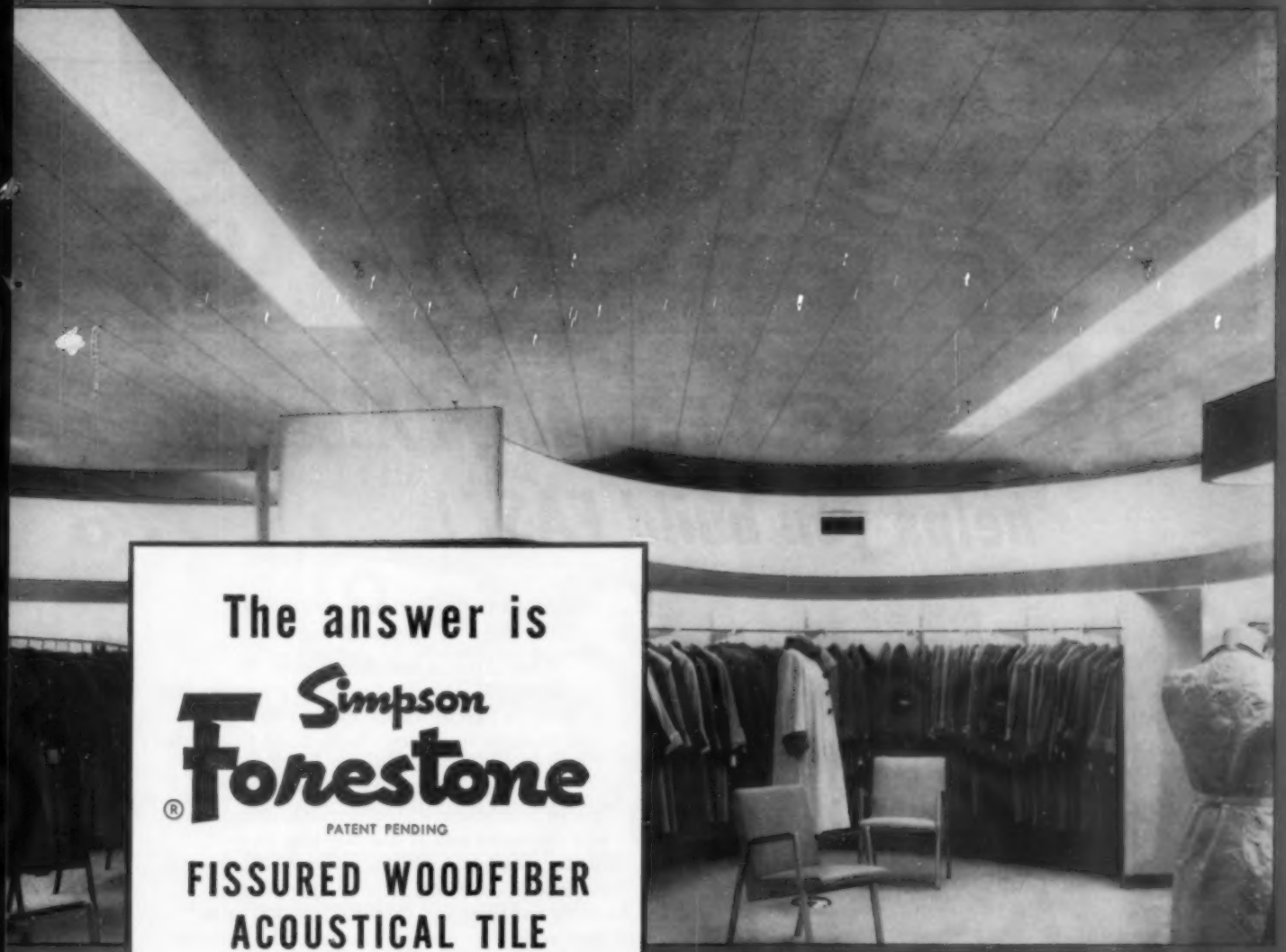

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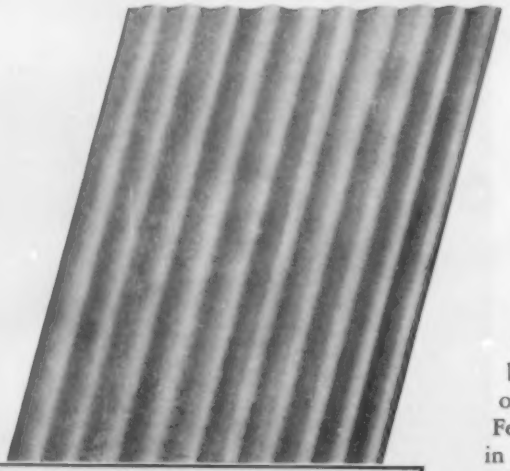

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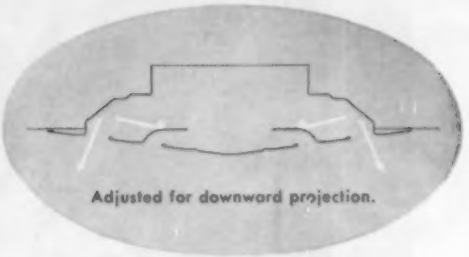

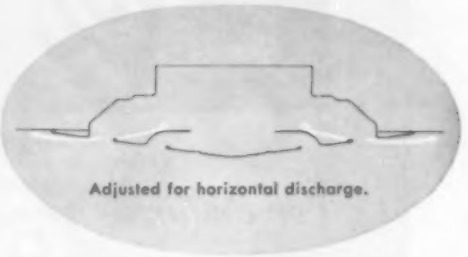

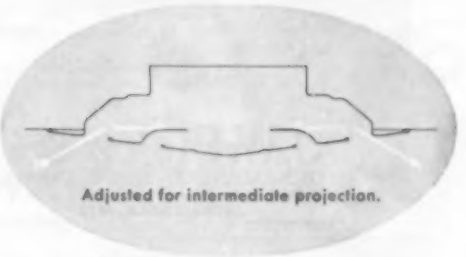

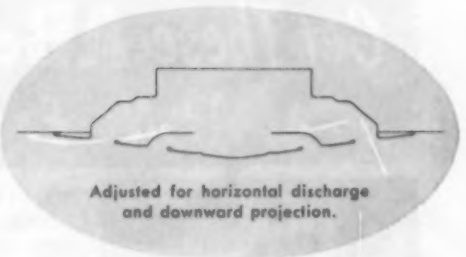

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reviews

(continued from page 220)

the imagination even in a psycho-physiological world.

Great architecture, Raskin assures us, can be created only by a great personality—that loneliest of men!—and that is something that even Einstein could not explain. JOSEPH HUDNUT

that fine job you saw

The Architectural Index. *Ervin J. Bell, 5532 S. Kenwood Ave., Chicago 37, Ill., 1954. 39 pp., $4.* (Back copies available: 1950, 1951, 1952, $3 each; 1953, $4)

Ervin J. Bell's complete, comprehensive index of architectural work published in seven U. S. magazines has again appeared —listing presentations of 1954. Cross-filed for easy reference, this pocketsize book is an invaluable research aid—a "must" for offices of architects, designers, and engineers. The job done by Architect Bell is recommended by the P/A Editors. A.F.

timely advice

Motor Courts from Planning to Profits. *C. Vernon Kane. Ahrens Publishing Co., Inc., 71 Vanderbuilt Ave., New York, N. Y., 1945. 243 pp., illus., $5.50*

This manual for owners and operators of motor courts and highway hotels is well organized, clearly written, and illustrated with plans, diagrams, and sample operating accounts. It offers advice on all of the problems which might be expected to arise, including selection of a site, land use, and the practical problems of furnishing and operation. The particularly complete exposition of financial problems should prove valuable to architects and builders undertaking work in this field. HEATH LICKLIDER

books received

Houses, Interiors, Projects. Harry Seidler. Associated General Publications, Sydney, Australia. 156 pp., illus.

Simplified Site Engineering for Architects and Builders. Harry Parker & John W. MacGuire. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y., 1954. 250 pp., illus., $5

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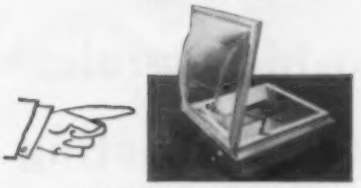

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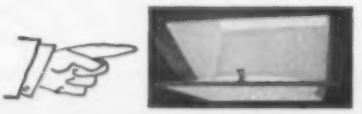

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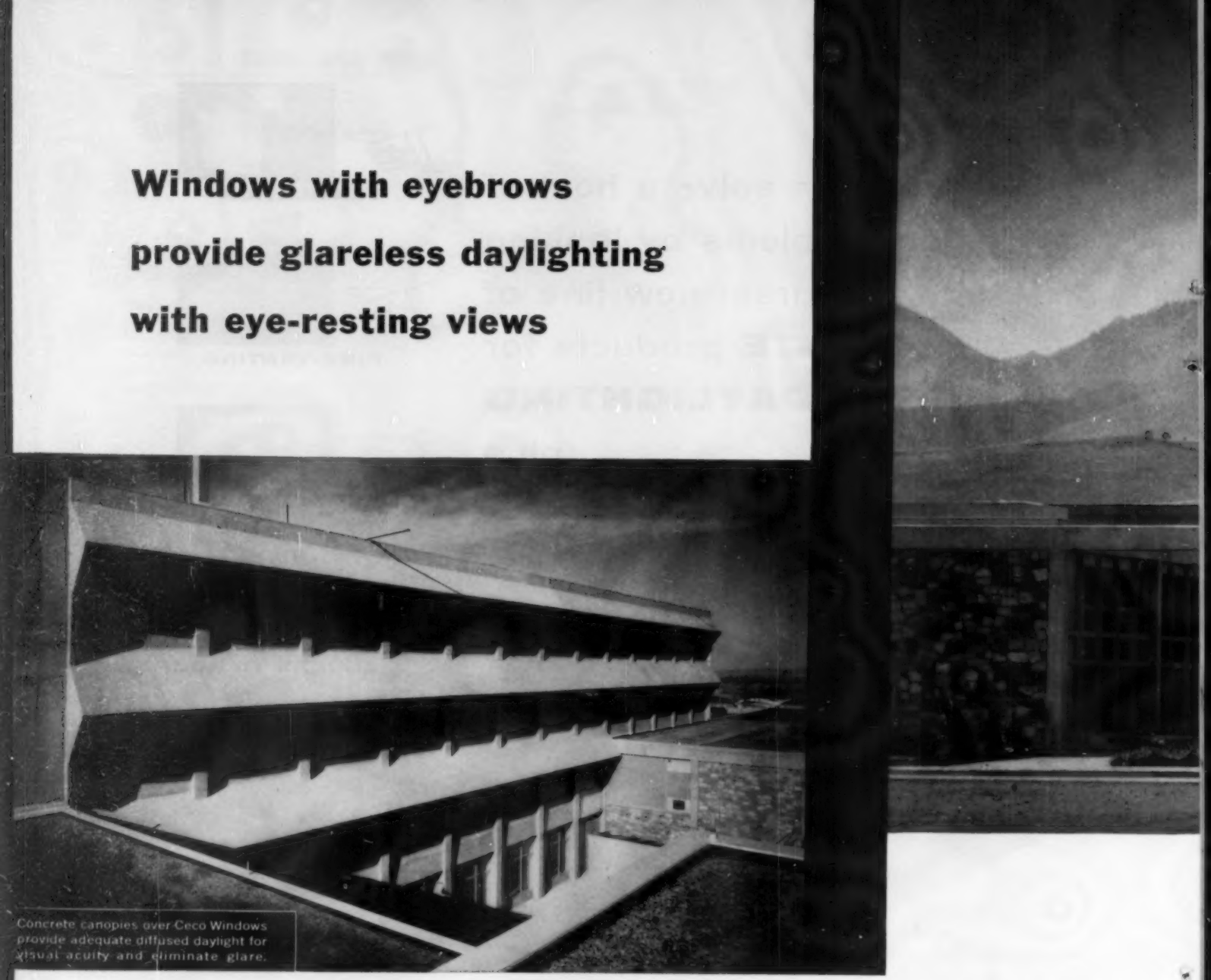

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Concrete joist construction was chosen as the best framing method for the building. Less concrete and steel were used than in other monolithic concrete constructions. Reduced deadweight permitted lighter columns and footings. The contractor selected Ceco-Meyer Adjustable-Type Steelforms for the job. The Boulder Radio Propagation Laboratory is another example of Ceco's performance on the architect-engineer-contractor-supplier team. Ceco offers you similar structural engineering and window product services, including erection . . . for *your* next building project. Consult nearest Ceco office or Sweet's files.

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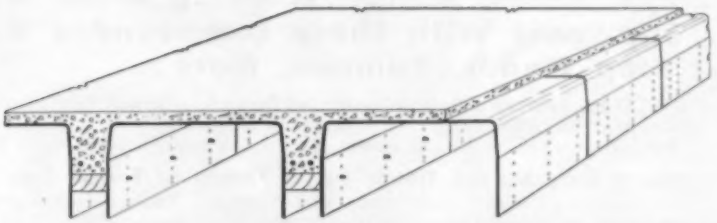
Radio Propagation Laboratory—U.S. Bureau of Standards, Boulder, Colorado; Architects—Pereira & Luckman; Associate Architect—Robert Ditzen; Contractor—Olson Construction Company



Typical arrangement of Ceco-Meyer Adjustable-Type Steelforms, showing simplicity of erection. Proper joist depth is obtained by nailing through selected holes into the soffit form.

CECO STEEL

Concrete Joist Construction was also used in the roof of the open walkway.

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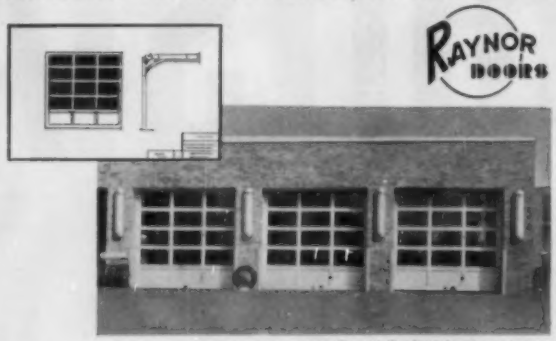

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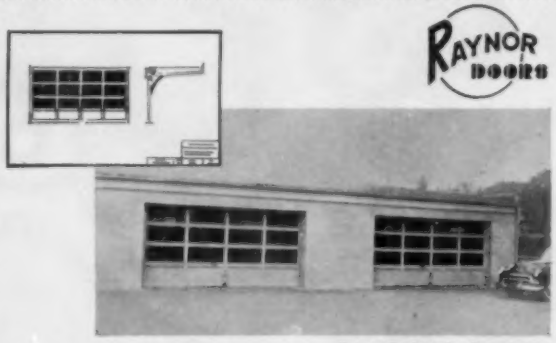

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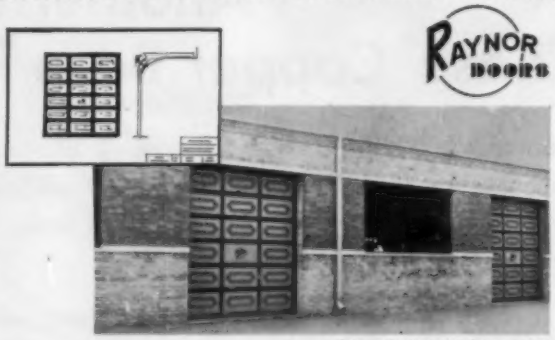

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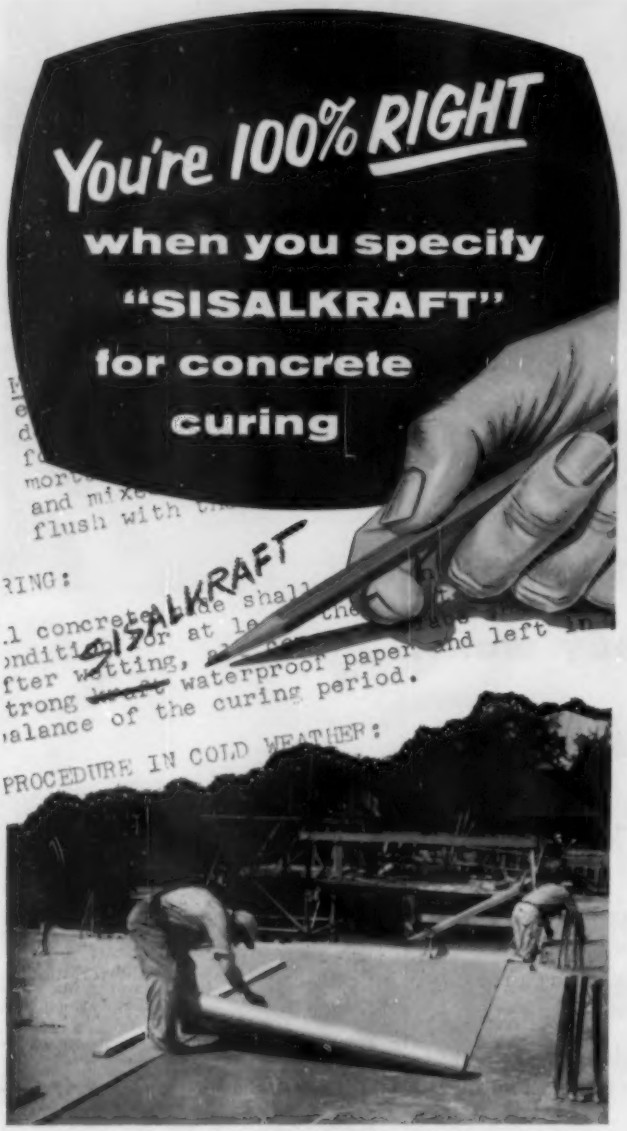

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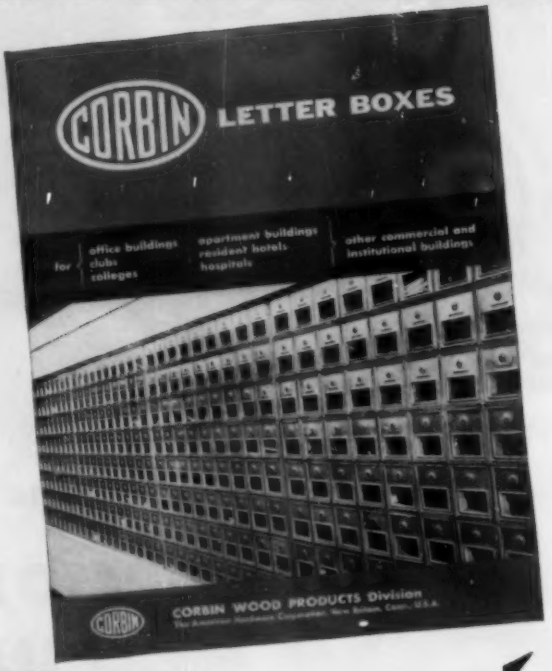

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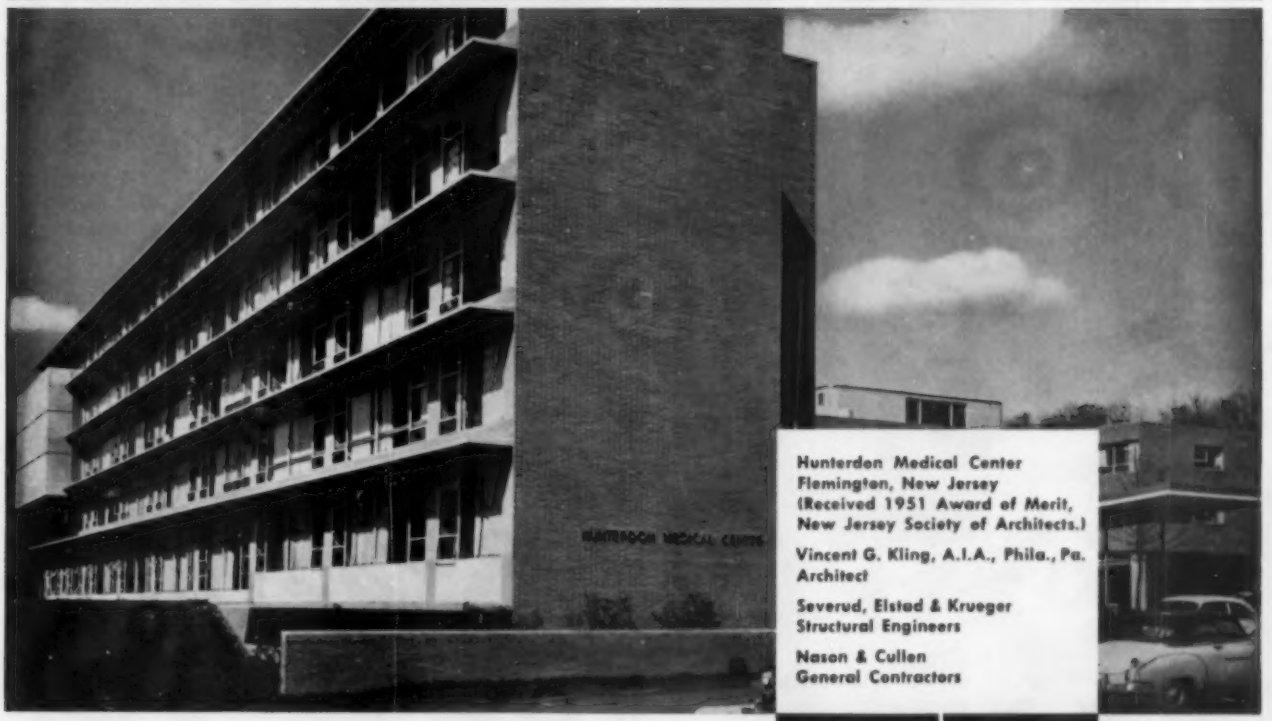

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> *"All imported marble shall be selected from available stocks in this country, or, if imported, the marble shall be delivered in this country in rough form. All finishing, including selection and jointing to size, polishing, cutting and carving, shall be executed in the United States."*

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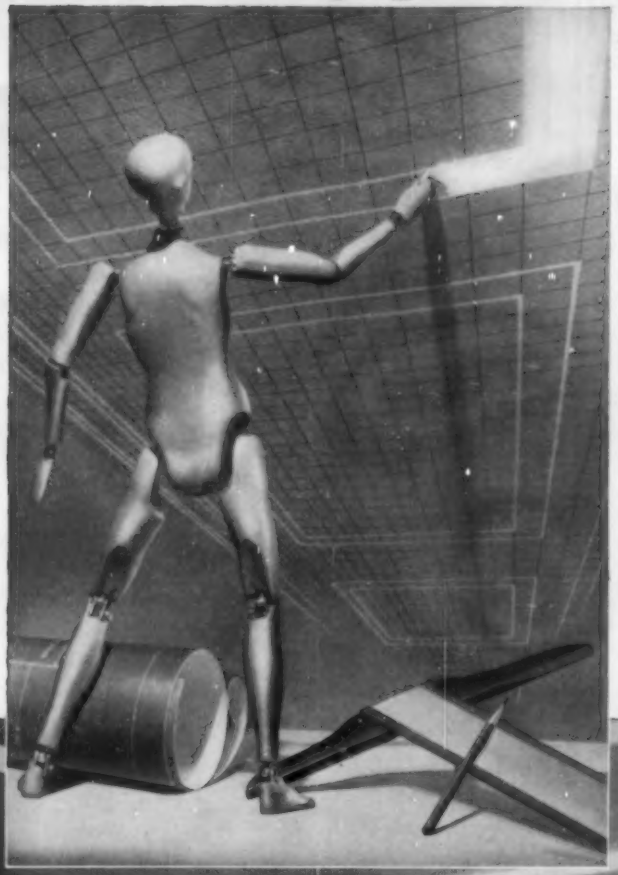

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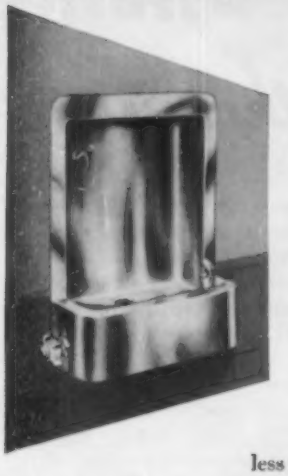

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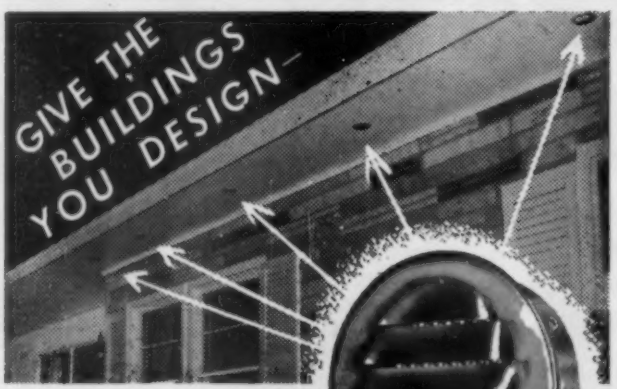

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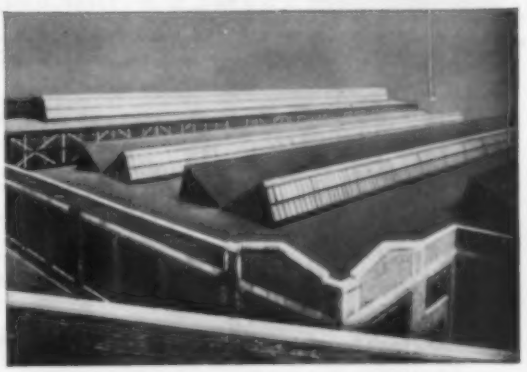

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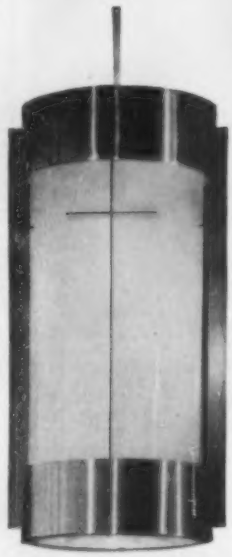

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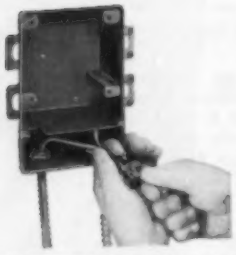

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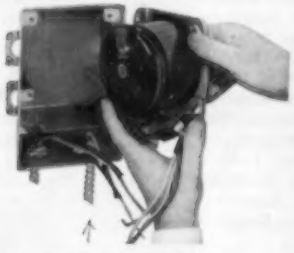

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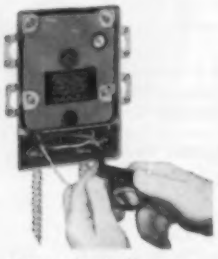

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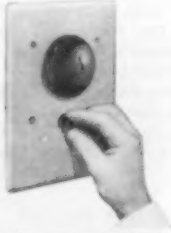

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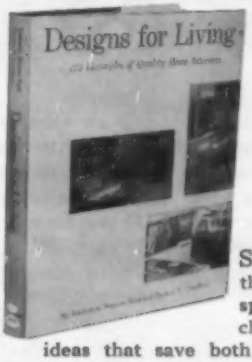

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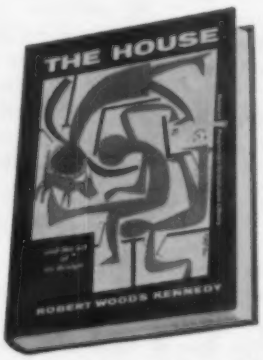

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P.S.

There has been a great deal of advice given to architects recently on the subject of public speaking. This is an important ability to develop; being able to fascinate an audience in the cause of architecture is an art any civic-minded practitioner should learn and practice. However, the little *private* speech—made directly to one potential client—is also important, and on this I find no current literature or suggested outlines. Here are a few recommendations of points that might be elaborated.

If you have a small office: "Nothing can take the place of a small, cohesive group, whose interests are directed entirely on your problem. We are not a plan factory. We give personal attention to every detail."

If you have a large office: "We have the benefit of a comprehensive, efficient organization, large enough to include trained specialists in every branch of design, research, documentation, and construction."

If you are a specialist: "Obviously, only a man who has made a specialized study of your problem over many years, a man who is a recognized authority in his field, can do justice to your project."

If you are a general practitioner: "We will approach your job with a fresh point of view. We have no preconceived or fixed ideas, resulting from a sureness that we know it all. Only a man who has designed many types of buildings has this unbiased approach."

To a conservative client: "We don't believe in being different just for the sake of being different. Our approach will be contemporary, but with respect for the tradition of the community."

To a progressive client: "We refuse to be bound by meaningless tradition, but will explore all the fresh, new possibilities of design and construction your project opens up to us."

If you are young: "Today's approach to architecture requires the enthusiasm and the training that only the younger generation has."

If you are not young: "Today's architecture needs the restraint and the maturity that only years of experience can give."

If the office is busy: "We advise you not to rush this project too fast. We want to give it the time for preliminary study that it deserves."

If the office is not busy: "With an inflationary situation surely coming, we advise you to authorize us to go ahead quickly with working drawings, so that we can take advantage of the present price structure."

To a local client: "You will naturally want to support the architects in our own community, where there is just as fine talent as you could find anywhere in the United States."

To an out-of-town client: "You would not be fair to yourself if you limited your search for an architect to your own locality, and its few practitioners."

If you have a brochure: "You can see that we have put together data on work we have done, for your convenience and reference."

If you have no brochure: "We don't believe in self-promotion, or such things as brochures. We suggest you visit our completed work, which speaks for itself."

If you feel sure of the job: "Now I don't want you to make a quick decision; be sure you have canvassed the field before you decide to retain us."

If you have tough competition: "It usually doesn't pay to shop around for an architect. It's better to decide these things on a purely objective basis."

If you've had work published: "Of course this doesn't mean anything, but I thought you'd like to see this copy of. . . ."

If you haven't been published: "Thank God I'm not one of the 'pets' of the magazines. I'm interested in down-to-earth construction—not theory."

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I have at hand a copy of the *Annual Report of the Department of Public Works, The City of New York.* It is a book of 135 pages, well illustrated. The first illustration is a picture of the Hon. Robert F. W. Wagner, Mayor of the City. The second illustration is a picture of Frederick H. Zurmuhlen, P.E., R.A., Commissioner of the Department. Both very handsome gentlemen. There then follow pictures of the openings of a branch library, a health center, and several other projects. Various city officials are in these pictures, and Commissioner Zurmuhlen appears sometimes with his hat on, sometimes bareheaded. Very handsome both ways! Then there is a small picture of Albert B. Bauer, R.A., Director of the Division of Buildings in the Department.

Finally, on page 17, pictures of buildings begin. I noticed a number of very distinguished structures, designed by architects with whom I am familiar. For example: Bellevue Nurses' School and Residence, by Litchfield, La Pierre & Associates, and the Coney Island Hospital, by Architects Associated.

I happen to know who designed these projects because of information which I already had, from one source or another. However, there are many *other* buildings illustrated in the book whose architects I cannot identify. The reason that I can't is a simple but a maddening one: this report from Commissioner Zurmuhlen, P.E., R.A. (and AIA, incidentally) to Mayor Wagner *does not mention the names of any of the private architects or engineering firms who designed these beautiful structures for the citizens of New York.*

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One difficulty in objective criticism of architecture is the need to be objective. It seems to me that every time we publish a building that I have visited under pleasant circumstances I find myself being sentimentally pleased that we are publishing it, and being unreasonably annoyed at whatever carping criticisms my editorial colleagues propose. So what if the fireplace wall in that house has a slightly awkward proportion? Don't I know from my own experience that it has a warm, comfortable perspective when the fire is lighted and the talk is good? Who cares if this entry hall looks too small on the plan? Don't I know that it leads to a delightful, intimate house in which friendly people lead a relaxed life?

Of course this is a completely indefensible point of view. I should always draw myself up short when I am having a very good time and say, "But is this really good architecture? Would it take good pictures? As published material, would it be useful, instructive and illuminating to a large proportion of P/A's readers? Or am I just being a sentimental old fool?"

It isn't just houses I'm talking about, either. When I visit a school, walk into a bright, gay kindergarten room where a "show me" class is going on, and have a cute little girl come over to me with her pet rabbit to show me what she's showing the class that day—I should, of course, not let myself be distracted from the orientation of the room, the foot-lamberts provided at the "task," or the ingenuity of the structural system.

It's very important to visit the jobs we're going to publish. It's necessary, in good reporting, to see how these jobs work in actuality. But it's also a good thing that we have checks and balances in the form of hard-boiled, critical editorial meetings. Any one Editor, we've discovered, is likely to become an old softy about some of the buildings he's seen.

Thomas H. Creighton

See how All-Air High Velocity units

lower the roof

The National Bank of Detroit, which is equipped with an Anemostat All-Air High Velocity distribution system.

This photograph shows the high velocity ducts installed *through* the open web joists. Note how the Anemostat sound attenuation unit is also placed *inside* the open web joist area. As a result, the architects and engineers were able to save *nearly two feet in a one-story building* . . . also make comparable savings in construction costs.

Completed interior with the Anemostat High Velocity units installed in the ceiling.

Facts about All-Air HV units

- Can be used with smaller than conventional ducts.
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- Require no coils, thus eliminate clogging and odors.
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- *Engineer:* F. A. SANDO
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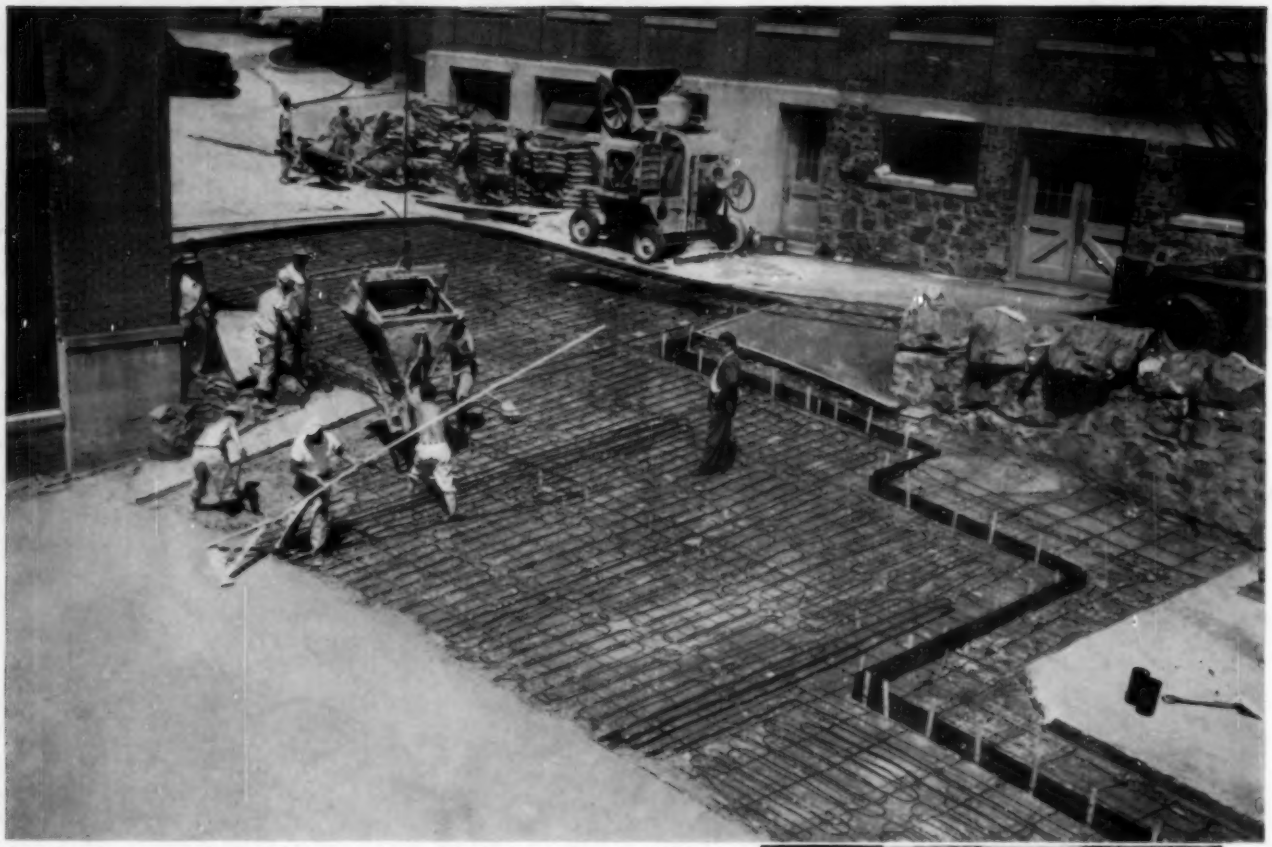
• ***For latest data on All-Air High Velocity units,*** write on your business letterhead for *new Selection Manual 50* to Anemostat Corporation of America, 10 E. 39 Street, New York 16, New York.



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